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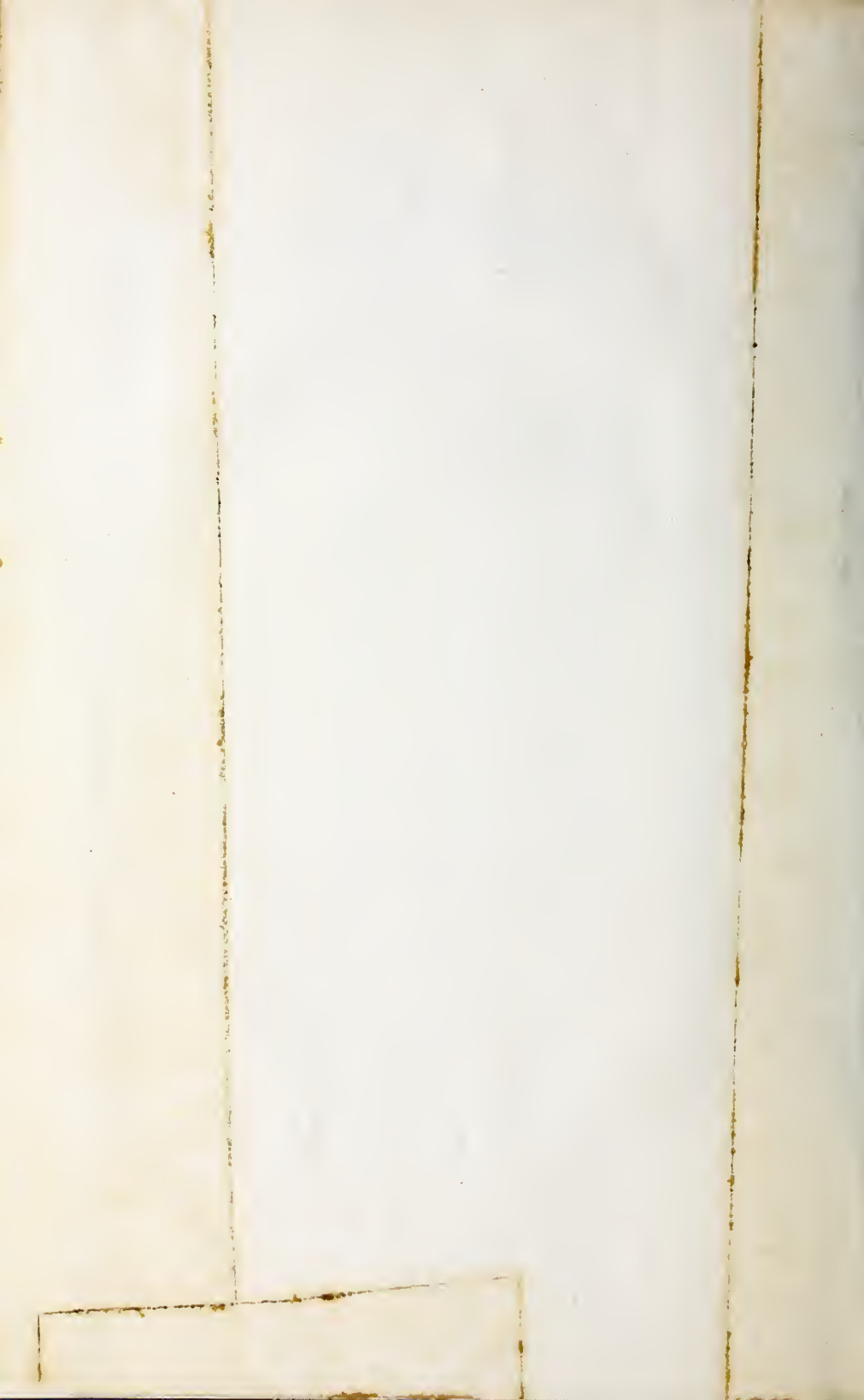
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CORRECTIONS
**THE AGRICULTURAL AND
TECHNICAL COLLEGE OF
NORTH CAROLINA**

AT GREENSBORO

1964-1965 BULLETIN





**THE AGRICULTURAL
AND TECHNICAL COLLEGE
OF NORTH CAROLINA**

Greensboro



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MAY, 1964

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THE BULLETIN OF
THE AGRICULTURAL
AND TECHNICAL COLLEGE
OF NORTH CAROLINA

(CO-EDUCATIONAL INSTITUTION)

SIXTY-EIGHTH ANNUAL CATALOGUE
1963-64

WITH ANNOUNCEMENTS FOR 1964-1965

GREENSBORO, NORTH CAROLINA



HISTORICAL STATEMENT

The Agricultural and Technical College was established as the "A. and M. College for the Colored Race" by an act of the General Assembly of North Carolina ratified March 9, 1891. The act read in part:

That the leading object of the institution shall be to teach practical Agriculture and the Mechanic Arts and such branches of learning as relate thereto, not excluding academical and classical instruction.

The College began operation during the school year 1890-1891, before the passage of the state law creating it. This curious circumstance arose out of the fact that the Morrill Act passed by Congress in 1890 earmarked the proportionate funds to be allocated in bi-racial school systems to the two races. The A. and M. College for the White Race was established by the State Legislature in 1889 and was ready to receive its share of funds provided by the Morrill Act in the Fall of 1890. Before the college could receive these funds, however, it was necessary to make provisions for Colored students. Accordingly, the Board of Trustees of the A. and M. College in Raleigh was empowered to make temporary arrangements for these students. A plan was worked out with Shaw University in Raleigh where the College operated as an annex to Shaw University during the years 1890-1891, 1891-1892, and 1892-1893.

The law of 1891 also provided that the College would be located in such city or town in the State as would make to the Board of Trustees a suitable proposition that would serve as an inducement for said location. A group of interested citizens in the city of Greensboro donated fourteen acres of land for a site and \$11,000 to aid in constructing buildings. This amount was supplemented by an appropriation of \$2,500 from the General Assembly. The first building was completed in 1893 and the College opened in Greensboro during the fall of that year.

In 1915 the name of the institution was changed to The Agricultural and Technical College of North Carolina by an Act of the State Legislature.

The scope of the college program has been enlarged to take care of new demands. The General Assembly authorized the institution to grant the Master of Science degree in education and certain other fields in 1939. The first Master's degree was awarded in 1941. The School of Nursing was established by an Act of the State Legislature in 1953 and the first class was graduated in 1957.

The General Assembly repealed previous acts describing the purpose of the College in 1957, and re-defined its purpose as follows:

"The primary purpose of the College shall be to teach the Agricultural and Technical Arts and Sciences and such branches of learning as relate thereto; the training of teachers, supervisors, and administrators for the public schools of the State, including the preparation of such teachers, supervisors and administrators for the Master's degree. Such other programs of a professional or occupational nature may be offered as shall be approved by the North Carolina Board of Higher Education, consistent with the appropriations made therefor."

Five presidents have served the institution since it was established. They are as follows: Dr. J. O. Crosby (1892-1896), Dr. James B. Dudley, (1896-1925), Dr. F. D. Bluford, (1925-1955), Dr. Warmoth T. Gibbs, (1956-1960), and the current president, Dr. Samuel DeWitt Proctor, who began his duties July 1, 1960.

COLLEGE CALENDAR

FALL QUARTER

Pre-Session Faculty Institute
Freshman Students Report
Registration, Freshman
Registration, Upperclassman
Classes Begin
Last day for making changes
in schedules

FALL QUARTER CONVOCATION

Pre-Registration, Winter Quarter

THANKSGIVING HOLIDAYS

Fall Quarter Examinations

Registration, Winter Quarter

CHRISTMAS HOLIDAYS BEGIN

Sept. 17, 18—Thurs., Fri.

Sept. 20—Sunday

Sept. 24—Thursday

Sept. 25-26—Friday, Sat.

Sept. 28—Monday

October 5—Monday

October 6—Tuesday

October 14—October 21

Nov. 26, 27, 28—Thurs., Fri., Sat.

Dec. 14, 15, 16—Mon., Tues., Wed.

Dec. 17, 18—Thurs., Friday

Dec. 18—Fri. (End of the day)

WINTER QUARTER

Classes Begin

Last day for making changes
in schedules

Pre-Registration, Spring Quarter

WINTER QUARTER CONVOCATION

Winter Quarter Examinations

Jan. 4, 1965—Monday

Jan. 8—Friday

Jan. 14—January 21

Jan. 19—Tuesday

March 16, 17, 18—Tues., Wed.,
Thurs.

1964

JANUARY

S M T W T F S

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APRIL

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JULY

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OCTOBER

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FEBRUARY

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MAY

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AUGUST

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30	31						

NOVEMBER

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MARCH

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JUNE

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14	15	16	17	18	19	20	
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28	29	30					

SEPTEMBER

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27	28	29	30				

DECEMBER

S M T W T F S

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20	21	22	23	24	25	26	
27	28	29	30	31			

1964-1965

SPRING QUARTER

Registration, Spring Quarter
Classes Begin
Last day for making changes
in schedules
SPRING QUARTER CONVOCATION
(Honors Day)
Pre-Registration, Fall Quarter
EASTER HOLIDAYS
Classes Resume
Senior Day
BACCALAUREATE EXERCISES
Spring Quarter Examinations
COMMENCEMENT EXERCISES

March 22, 23—Monday, Tuesday
March 24—Wednesday
April 2—Friday
April 6—Tuesday
April 14—April 21
April 16, 17, 19, Fri., Sat., Mon.
April 20—Tuesday
May 18—Tuesday
June 6—Sunday
June 8, 9, 10—Tues., Wed., Thurs.
June 12—Saturday

SPECIAL DAYS

Founders' Day
American Education Week
Religious Emphasis Week
Arbor Day
Brotherhood Week
Honors Day

November 3—Tuesday
November 8-14
January 17-20
March 19—Friday
February 16-23
April 6

1965

JANUARY	APRIL	JULY	OCTOBER
S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
3 4 5 6 7 8 9	4 5 6 7 8 9 10	4 5 6 7 8 9 10	3 4 5 6 7 8 9
10 11 12 13 14 15 16	11 12 13 14 15 16 17	11 12 13 14 15 16 17	10 11 12 13 14 15 16
17 18 19 20 21 22 23	18 19 20 21 22 23 24	18 19 20 21 22 23 24	17 18 19 20 21 22 23
24 25 26 27 28 29 30	25 26 27 28 29 30	25 26 27 28 29 30 31	24 25 26 27 28 29 30
31			31
FEBRUARY	MAY	AUGUST	NOVEMBER
S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
1 2 3 4 5 6	2 3 4 5 6 7 8	1 2 3 4 5 6 7	1 2 3 4 5 6
7 8 9 10 11 12 13	9 10 11 12 13 14 15	8 9 10 11 12 13 14	7 8 9 10 11 12 13
13 15 16 17 18 19 20	16 17 18 19 20 21 22	15 16 17 18 19 20 21	14 15 16 17 18 19 20
21 22 23 24 25 26 27	23 24 25 26 27 28 29	22 23 24 25 26 27 28	21 22 23 24 25 26 27
28	30 31	29 30 31	28 29 30
MARCH	JUNE	SEPTEMBER	DECEMBER
S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
1 2 3 4 5 6	6 7 8 9 10 11 12	5 6 7 8 9 10 11	5 6 7 8 9 10 11
7 8 9 10 11 12 13	13 14 15 16 17 18 19	12 13 14 15 16 17 18	12 13 14 15 16 17 18
14 15 16 17 18 19 20	20 21 22 23 24 25 26	19 20 21 22 23 24 25	19 20 21 22 23 24 25
21 22 23 24 25 26 27	27 28 29 30	26 27 28 29 30	26 27 28 29 30 31
28 29 30 31			

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H. L. TRIGG

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The Department of Agricultural Economics
The Department of Agricultural Education
The Department of Animal Husbandry
The Department of Biology
The Department of Chemistry
The Department of Home Economics
The Department of Plant Science and Technology

II. THE SCHOOL OF EDUCATION AND GENERAL STUDIES

The Department of Education and Psychology
The Department of English
The Department of Foreign Languages
The Department of Music
The Department of Physical Education
The Department of Social Sciences

III. THE SCHOOL OF ENGINEERING

The Department of Architectural Engineering
The Department of Art
The Department of Business
The Department of Electrical Engineering
The Department of Industrial Education
The Department of Mathematics
The Department of Mechanical Engineering
The Department of Physics

IV. THE SCHOOL OF NURSING

V. THE GRADUATE SCHOOL

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DOROTHY S. LIGHTFORD, B.S.	<i>Stenographer, Bluford Library</i>
MARIAN T. LOGAN, B.S.	<i>Stenographer, School of Nursing</i>
MARY K. MARKS	<i>Dormitory Supervisor</i>
JOAN B. MARTIN, B.S.	<i>Secretary to Director of Institutional Research</i>
CATHERINE M. MATIER, B.S.	<i>Library Assistant</i>
ERNEST A. MCCOY, B.S., M.S.	<i>Dormitory Supervisor</i>
MABEL MCCOY, A.B., A.M., B.L.S.	<i>Librarian</i>
PAULINE G. MCLAUGHLIN, B.S.	<i>Secretary to the Dean of Students</i>
CHARLES R. MCLEAN	<i>Stock Room Clerk, Cafeteria</i>
DOROTHY G. MOORE	<i>Typist, Office of Admissions</i>
MARGIE T. MOORE	<i>Food Service Supervisor</i>
*ALMA I. MORROW, A.B., B.S., M.L.S.	<i>Librarian</i>
CICERO C. MURPHY, B.S.	<i>Purchasing Agent, Business Manager's Office</i>
MADELINE H. NASH	<i>Clerk, Library</i>
MAE H. NASH, B.S.	<i>Secretary to the Dean, School of Agriculture</i>

JOYCE G. NEAL, B.S.	<i>Secretary to Supervisor of Trade and Industrial Education</i>
MARY G. NEAL, R.N.	<i>Acting Head Nurse, Sebastian Infirmary</i>
T. E. NEAL, B.S.	<i>Superintendent, Power Plant</i>
MYRTLE L. NESBITT, B.S.	<i>Dormitory Supervisor</i>
ZADIE NORRIS, R.N.	<i>General Duty Nurse</i>
MADIE OLIVER, B.S.	<i>Accounting Clerk, Cashier's Office</i>
ESTELLE L. PATTERSON	<i>Typist, Office of Admissions</i>
THELMA PEARSALL, B.S., B.L.S., M.L.S.	<i>Librarian</i>
EVANGELINE B. PENDERGRAST, B.S.	<i>Typist, Office of Admissions</i>
NORMA C. PENNIX, B.S.	<i>Secretary to Air Force ROTC</i>
DAPHINE H. PEOPLES, B.S.	<i>Stenographer, Buildings and Grounds Dept.</i>
SADIE PHILLIPS, B.S.	<i>Clerk, Library</i>
LUCILLE PIGGOTT, B.S.	<i>Secretary to the Dean of Instruction</i>
CORRENE A. POOLE, B.S.	<i>Secretary to the Librarian</i>
MARY H. ROBERTS, B.S.	<i>Assistant Director, Nursery School</i>
BESSIE SAMPSON, B.S.	<i>Stenographer, School of Education and General Studies</i>
JURINCE SELLARS	<i>Stenographer, English Department</i>
LELA R. SHANKS, R.N.	<i>General Duty Nurse</i>
EDGAR SHEPHARD, B.S.	<i>Cashier, Cashier's Office</i>
ELSIE SIMMONS	<i>Secretary to the Dean of Women</i>
ANNIE R. SIMPSON	<i>Dormitory Supervisor</i>
GERALDINE C. SIMS, B.S.	<i>Accounting Clerk, Business Manager's Office</i>
BERTHA H. SMITH, B.S.	<i>Secretary to the Dean, Technical Institute</i>
DOROTHY L. SPAIN, B.S.	<i>Clerk, Business Manager's Office</i>
YVONNE G. SPENCER, R.N.	<i>General Duty Nurse</i>
FLORINE I. STAFFORD, B.S.	<i>Library Assistant</i>
GLORIA M. SWANN, B.S.	<i>Secretary to the Dean, School of Education and General Studies</i>
ANNE G. SWYGERT, B.S.	<i>Key Punch Operator, Guidance Center</i>
EVELYN A. TAYLOR	<i>Typist, Buildings and Grounds Department</i>
ALLIE L. THOMPSON, B.S.	<i>Secretary to the Director of Placement</i>
MARY L. THOMPSON, B.S.	<i>Library Assistant</i>
LAURA M. THORNTON, B.S.	<i>Food Service Supervisor</i>
EULA K. VEREEN, B.S.	<i>Dietitian</i>
ETHEL R. WALLACE, B.S.	<i>Stenographer, Vocational Agriculture</i>

LATHAM WALLACE, B.S.	<i>Assistant Property Custodian</i>
ANNIE V. WALLINGTON, B.S.	<i>Stenographer, Chemistry Department</i>
ETHEL WHITSETT	<i>Typist, Office of Admissions</i>
RUBY L. WIDEMON	<i>Typist, Department of Social Studies</i>
ROBERT A. WILLIAMS, B.S.	<i>Assistant Property Custodian</i>
MADESSA L. WILLOUGHBY, B.S.	<i>Dormitory Supervisor</i>
ZOLLIE H. WILSON	<i>Assistant Farm Supervisor</i>
TOMMY W. WOODARD, B.S.	<i>Chemist</i>
ROSALIE M. WOODEN	<i>Secretary to the Director of Extended Services</i>
ALENE C. YOUNG, A.B., M.L.S.	<i>Librarian</i>
KATY S. ZACHARY, B.S.	<i>Library Assistant</i>
JOHN ZEIGLER, B.S.	<i>Chief Accountant, Business Manager's Office</i>

NON-COMMISSIONED OFFICERS OF THE UNITED STATES AIR FORCE ADMINISTRATION

OBIE CALTON, <i>Staff Sergeant</i>	<i>Education and Training Specialist</i>
CHRISTOPHER M. GRIFFIN, <i>Technical Sergeant</i> ..	<i>Administrative Supervisor</i>
JESSE L. SUGGS, <i>Staff Sergeant</i>	<i>Administrative Technician</i>
CHARLES C. WHITAKER, <i>Staff Sergeant</i>	<i>Supply Supervisor</i>

NON-COMMISSIONED OFFICERS OF THE UNITED STATES ARMY ADMINISTRATION

JIMMIE CUBY, <i>Sergeant First Class</i>	<i>Light Weapons Instructor</i>
HENRY L. DAVIS, <i>Sergeant First Class</i>	<i>Administrative NCO</i>
HUBERT L. GLENN, <i>Sergeant First Class</i>	<i>Light Weapons Instructor</i>
WILLIE L. LONG, <i>Staff Sergeant</i>	<i>Supply NCO</i>
CLARENCE WILSON, <i>Sergeant</i>	<i>Light Weapons Instructor</i>

STATE AGRICULTURAL EXTENSION SERVICE PERSONNEL:

R. E. JONES	<i>State Extension Agent</i>
MINNIE M. BROWN	<i>Assistant State Home Economics Agent</i>
L. R. JOHNSON	<i>District Agricultural Agent</i>
JOHN A. SPAULDING	<i>District Agricultural Agent</i>
HAROLD M. MCNEILL	<i>District Agricultural Agent</i>
HELEN W. BRANFORD	<i>District Home Economics Agent</i>
JOSEPHINE S. WEAVER	<i>District Home Economics Agent</i>

FRANCES W. CORBETT	<i>District Home Economics Agent</i>
GENEIEVE K. GREENLEE	<i>Home Economics Specialist</i>
BESSIE B. RAMSEUR	<i>Home Economics Specialist</i>
W. C. COOPER	<i>District 4-H Club Leader</i>
P. P. THOMPSON	<i>Extension Poultry Specialist</i>
T. W. FLOWERS	<i>Extension Horticulture Specialist</i>
SAMUEL J. HODGES	<i>Agronomy Extension Specialist</i>
*R. L. WYNN	<i>Extension Dairy Specialist</i>
CAROLYN CORBETT	<i>Secretary, District Home Economics Agents</i>
RUBY F. GARFIELD	<i>Secretary, District 4-H Club Leaders and Extension Poultry Specialist</i>
ROBERTA M. BRUTON	<i>Secretary, State Extension Agent</i>
MARGARET GARRETT	<i>Secretary, Men Specialists</i>
DORIS MINOR	<i>Secretary, District Agricultural Agents</i>
DELORES GARRETT	<i>Secretary, Assistant State Home Economics Agent</i>
MARY F. WALKER	<i>Secretary, Women Specialists</i>

* On leave.

GENERAL INFORMATION



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LOCATION

The College is located only nine blocks from the center of Mid-town Greensboro—a city of 129,000—noted for its friendliness and hospitality. This excellent urban location of the College has many distinct advantages since business establishments, transportation depots, theaters, and churches are all within reasonable walking distance. It is a further advantage to students who seek part-time employment in the business district of the city.

Greensboro offers many cultural and educational advantages because of the five senior colleges which are located there. The student attending A. and T. College may take advantage of the scholarly programs presented by these colleges.

INSTITUTIONAL MEMBERSHIPS

The Agricultural and Technical College is a fully accredited member of the SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS, and holds institutional membership in the following associations:

- American Association of Colleges for Teacher Education
- American Association of Collegiate Registrars and Admission Officers
- American Association of Land-Grant Colleges and State Universities
- American College Public Relations Association
- American Council on Education
- American Public Welfare Association
- Association of American Colleges
- Association of Collegiate Deans and Registrars
- Association of Collegiate Schools of Architecture
- College Language Association
- Council of Member Agencies, Department of Baccalaureate and Higher Degree Programs (Nursing)
- National Association of Business Teacher Education
- National Association of College and University Food Service
- National Commission on Accrediting
- National Institutional Teacher Placement Association
- National League for Nursing
- North Carolina College Conference
- North Carolina League for Nursing

Graduates of the College are eligible for membership in the American Association of University Women.

THE PHYSICAL PLANT

The A. and T. College campus comprises modern, fire resistant buildings, all thoroughly maintained for the highest level of efficiency, located on land holdings in excess of 781-acres.

Additional facilities procured during the past academic year include: The Lutheran College Property which contains several buildings; two tracts of land on Dudley Street, purchased from the Redevelopment Commission of Greensboro, and the new Hines Hall Annex, a half million dollar structure, constructed to expand instruction in chemistry.

BUILDINGS

Dudley Memorial Building (Administration)
 F. D. Bluford Library
 Harrison Auditorium
 Charles Moore Gymnasium
 Coltrane Hall (Headquarters for N. C. Agricultural Extension Service)

INSTRUCTION

Carver Hall School of Agriculture
 Cherry Hall School of Engineering
 Hodgkin Hall School of Education and General Studies
 Noble Hall School of Nursing
 Price Hall Technical Institute
 Benbow Hall Home Economics
 Garrett House Home Economics
 Nursery School Home Economics
 Hines Hall Chemistry
 Sockwell Hall Agricultural Engineering
 Ward Hall Dairying
 Reid Greenhouses
 Graham Hall Business
 Frazier Hall Music-Art
 Price Hall Annex Technical Institute
 Campbell Hall ROTC Headquarters

RESIDENCE HALLS**For Women**

Holland Hall (150)
 Morrison Hall (130)
 Vanstory Hall (92)
 Curtis Hall (148)
 Gibbs Hall (200)

Residence for Nurses

For Men

Scott Hall (1010)
 Cooper Hall (400)

Service Buildings

Murphy Hall Cafeteria
 Brown Hall Cafeteria, Post Office, bookstore, and snack-bar
 Sebastian Infirmary
 Power Plant
 Laundry-Dry Cleaning Plant

Miscellaneous Facilities

College Farms—containing modern farm buildings and stocked lakes.
 Athletic field—including three practice fields for football, quarter mile track, baseball diamond and field house.

The Oaks President's residence

THE AUDIO-VISUAL CENTER

The Audio-Visual Center is a resource pool of materials, services and facilities. It purports to assist in the improvement of instruction by providing means of facilitating the communication of ideas, attitudes, and facts in the teaching-learning process. The Center is located on the first floor of Bluford Library. It includes an office area, film inspection area, storage area, browsing area, preview room, and a room for group showings. The Audio-Visual Center provides the following services for the campus:

- Circulation of audio-visual materials
- Procurement of free loan 16mm films from outside sources
- Information on rental films from other sources
- Projectionists for audio-visual showings
- Projection room with equipment
- Previewing facilities
- Assistance in the selection and preparation of materials
- Production of tape recordings, charts, and graphs

EXTENDED SERVICES

F. A. WILLIAMS, *Director*
B. W. HARRIS, *Assistant Director*

The Division of Extended Services brings into focus the resources of the College to serve the needs of individuals, groups, institutions, agencies, and committees for educative, consultative and other related services.

The Division is actually divided into *formal* and *informal* educational experiences for young adults and adults.

The Office of Extended Services is highly sensitive to the demands of any institutionalized social group needing the assistance of the College.

Formal Activities.

The formal activities include a program of evening studies geared for those who desire to earn a bachelor's degree on a part-time student basis. An Associate degree in Science may also be obtained in certain professional and Technical courses, including Agriculture, Business and Technology. Furthermore, courses are offered for both college credit and non-college credit for self-improvement. The Division also has a program of selected adult education courses of a non-credit category and is opened to adults without any special academic requirements.

Informal Services.

This part of the College's program makes available to the state a group of varying institutes, workshops, seminars, clinics, conferences, short-courses and special studies geared to meet the special needs of business, industry, teachers and other vocational groups which fall into the range of available human resources among the faculty and other resource people.

Adult Education Services.

In addition to formal and informal classes, the Division of Extended Services renders other adult education services. It provided a clearing point

for the execution of programs for business and other agencies in need of special training programs.

Special Short Courses.

In cooperation with the various schools of the college, the Division of Extended Services provides non-credit programs of studies in different areas of interest for persons who desire self-improvement in their vocational pursuits.

Coordinated Activities.

The Division of Extended Services also serves the campus as a coordinating unit for special educational meetings, conferences, workshops for individuals in varying vocational pursuits and interests.

Credit.

Residence credit at the undergraduate level is given for on-campus evening classes.

Admission Requirements

Students who desire to enter the Evening Program for collegiate credit are required to meet the same entrance requirements as regularly enrolled college students.

SUMMER SCHOOL

The Summer Sessions of the A. and T. College Summer School will be held for six weeks, beginning the second week in June. A second session will begin in July and continue for four weeks. A ten-week session concurrent with these two enables undergraduate students to complete a quarter of study.

Aside from the splendid opportunity which the Summer School offers teachers-in-service to raise their certificates and thereby obtain better salaries, the College makes it possible for the ambitious teacher to obtain a standard degree by attending the summer school.

College students may shorten their stay in college by attending summer school. Students from other institutions may enter the summer session for credit in their respective institutions, by permission from either the president or dean of their respective colleges. Such students will not be required to present a complete record of their previous training, but will be required to present a signed statement from the president or dean indicating the summer courses for which credit will be allowed.

College graduates may use their time in summer school meeting requirements for the Master of Science degree. Persons interested in earning this degree should make application for candidacy early in order that their program may be arranged with this end in view.

Inquiries should be addressed to: Director of Summer School, A. & T. College, Greensboro, North Carolina.

STUDENT PERSONNEL SERVICES

The broad objective of the program of Student Personnel Services is to aid the student in developing the attitudes, understandings, insights and the skills which will enable him to express himself as a socially competent person. The program places special emphasis on campus relationships and experiences which complement formal instruction.

More specifically the aims of the program of Student Personnel Services are as follows:

1. To help the student to become better acquainted with himself and the various problems confronting him.
2. To help the student to develop the ability to make satisfactory choices and adjustments.
3. To aid the student in making desirable adjustments in group relationships.
4. To provide cultural and social experiences which will help the student to develop an appreciation for the best in his culture.
5. To promote the physical, mental, moral and spiritual development of the student.

A number of college officials, faculty and staff members are responsible for various phases of the program of Student Personnel Services. These include the Dean of Students, the Dean of Men, the Dean of Women, the Director of Guidance Services, the Director of Student Health Services, the Director of Food Services, the Director of Religious Activities, the Director of Placement, the Advisor to Foreign Students, faculty advisors, and other individuals and agencies.

GUIDANCE SERVICES

Provision is made for testing, counseling, and guiding all students through the College Guidance Center. It is located on the ground floor of Dudley Building.

The Center is staffed with trained counselors who are prepared to deal with educational and vocational problems, problems of social adjustment and minor personal problems of the student. The staff is trained in both group and individual testing covering the areas of intelligence, aptitude, personality, interest, and achievement.

The Guidance Center conducts a testing program for all freshmen. The results of this program are used to assist freshmen in the planning of their educational and vocational careers. The Center conducts other testing programs that are required or desired by departments of the college, also. In addition to these duties, the Center cooperates with the Director of Placement in the placement of graduates.

HEALTH SERVICES

The college maintains a Health Service for students. The purposes of the health program are to safeguard the health of the students, to promote health habits among them, and to protect and improve the health environment of the college community.

The Health Service Center carries a staff of doctors, dentists, and nurses who are qualified to give professional attention to the health problems of students. The basic components of the health service program are as follows:

1. Medical Services:

The College Physician, who is the Medical Director of the Health Services, is in attendance in the infirmary daily—morning and evening—and is “on call” for any emergency situations.

2. Dental Services:

A dentist is in attendance weekly—Tuesday mornings and Thursday afternoons.

3. Nursing Services:

Registered nurses, under the direction of a head nurse, are in attendance daily on a twenty-four hour basis.

4. Follow-up and Consultation Services:

Follow-up services are given, and referrals to specialists are made upon recommendation of the College Physician.

5. Physical Examinations:

- a. Athletes, nursing students, advanced ROTC cadets and other special groups of students are given complete physical examinations at the Student Health Center each quarter or whenever necessary.
- b. All freshmen and transfer students are required to secure a complete physical examination, a blood test and a chest X-ray and send the examination reports to the College Physician before they are admitted to the college. The blood test and chest X-ray reports must be secured within 60 days prior to the date of enrollment. Follow-up examinations are made at the Health Center when necessary.
- c. All upperclassmen are required to get a physical examination from a doctor prior to the beginning of the quarter in which they plan to enroll and send the examination report to the College Physician. A blood test and X-ray report are not required.

HOUSING

The residence halls provide opportunities for personal, social, and intellectual companionship as well as experiences in group living. Each dormitory is organized and it conducts programs for the development of the student.

Housing facilities for women are provided in Curtis, Gibbs, Holland, Morrison, Vanstory Halls and Lutheran Halls. Men are housed in Cooper and Scott Halls.

Rooms are furnished with twin beds, dressers, study tables, and straight chairs. Each student who has been approved for living in one of the residence halls should bring his blankets and bed linen or come prepared to rent it.

All students, except those who are residents of Greensboro or those who commute from nearby communities, are required to live in one of the

dormitories unless given permission to live elsewhere by the Dean of Students.

FOOD SERVICES

The college provides food service for students at a reasonable cost. Two well equipped cafeterias and a snack bar are operated at convenient locations on the campus. Murphy Hall, located on the main campus, is reserved for freshmen and sophomores. The New Cafeteria, located in Brown Hall on the corner of Laurel and Lindsay Streets, is open to juniors and seniors. The snack bar in Brown Hall serves all students.

Students who live in the residence halls are required to eat in the cafeterias. Students who live in the city may purchase meals also.

PLACEMENT SERVICES

The Placement Office helps special students, seniors and alumni to secure positions for which they are qualified. It provides counseling and follow-up services and arranges interviews between prospective employees and employers.

Graduating seniors and graduate students are invited to register with the Placement Office. It is located in Room 104, Dudley Building. The services of this office are free to students and alumni of the college.

STUDENT ORGANIZATIONS AND ACTIVITIES

The college provides a well-balanced program of activities for moral, spiritual, cultural and physical development of the students. Religious, cultural, social and recreational activities are sponsored by various committees, departments, and organizations of the college. Outstanding artists, lecturers and dramatic productions are brought to the campus also.

Student Government

The Student Government, the key student organization, shares with the administration in planning and regulating student affairs. It recommends student representatives to serve on college committees, stimulates student participation in campus life and helps to make decisions which affect the welfare of the students and the college community.

Student Publications

The REGISTER, a weekly publication of the student body, endeavors to keep students informed concerning the activities of college and it provides an opportunity for the expression of student ideas and opinions.

The AYANTEE is the College Yearbook.

The Athletic Program

Varsity Athletics—The intercollegiate athletic program is under the supervision and direction of the Athletic Director and the Athletic Committee. The committee includes faculty, alumni and students. The sports

included in the program are football, basketball, baseball, track and swimming. The college is a member of the Central Intercollegiate Athletic Association, the National Association of Intercollegiate Athletics, and the National Collegiate Athletic Association.

The varsity letter is awarded to members of the football, baseball, basketball, track and swimming teams for outstanding performance and active participation.

The Lettermen's Club—The purpose of the Lettermen's Club is to bring about a union between college athletes and to promote the ideals of leadership, sportsmanship, and fair play. Membership in the organization is limited to varsity lettermen of The Agricultural and Technical College.

Intramural Athletics—A Program of intramural athletic activities is conducted throughout the school year. Schedules and tournaments are arranged, and equipment is made available by league managers and physical education majors. All students are encouraged to participate in intramural activities.

The Women's Athletic Association—The Women's Athletic Association is a member organization of the Women's Sports Day Association. It is open to all women students who desire to participate in competitive and leisure time athletic activities, such as hockey, soccer, softball, basketball, volley ball, badminton, and archery. Members of the association are selected to engage in competitive activity and fellowship with women students of other colleges during semi-annual Sports Day meetings. Appropriate awards are given for outstanding performance and active participation.

Religious Organizations and Activities

The college is a non-denominational state supported institution, but opportunities are provided for students to recognize the resources of religion and to develop a desirable philosophy of life. The religious organizations and activities of the college include the Chapel, Sunday School, YMCA, YWCA, Baptist Student Union, Wesley Foundation, Canterbury Club, Newman Club, Westminster Fellowship, and the Southern Christian Fellowship.

HONOR SOCIETIES

Alpha Kappa Mu Honor Society

The Alpha Kappa Mu Honor Society is a national scholarship organization with local chapters established in accredited colleges. The local chapter is known as Gamma Tau Chapter of the Alpha Kappa Mu Honor Society. The qualifications for Gamma Tau are the same as those of the national organization. They are as follows:

1. Candidates must have completed ninety quarter hours, with an average of not less than 3.30. These must include all required courses listed for freshmen and sophomores.

2. Membership is open to all students of the College, provided that they meet scholastic requirements; in the case of transfer students, there must have been a chapter of Alpha Kappa Mu or some other honor society with equivalent standards, rules and regulations at the institution from which they transferred.

3. Candidates must have a clear record in deportment.

The Society encourages participation in at least one extra-curricular activity. All students recommended by the Registrar and the Dean of Students as having the qualifications listed above are eligible for membership.

The Sophist Society is composed of regular college students of freshmen, sophomore, and junior classification who maintain a minimum average of 3.30. The purpose of this organization is to encourage high scholarship among these students. Members who qualify for membership in the Sophist Society may join Alpha Kappa Mu Honor Society during their junior or senior year.

Sigma Rho Sigma Recognition Society

Sigma Rho Sigma Recognition Society is a national honor society for social science majors. Its membership is open to graduates and undergraduates. Chapters of the Society are located in the various colleges represented in the membership of the Association of Social Science Teachers in Negro Colleges. The purposes of the Society are the following:

1. To encourage study, promote research, and to recognize achievement in the field of social science.
2. To promote the cooperation of students in the field of human relations.
3. To promote professional growth and development among the members.

To be eligible, one must be a junior concentrating in the social sciences, must have an average of 3.00, and must have a minimum credit of twenty-five hours in the social sciences.

Beta Kappa Chi

The purpose of this society shall be to encourage and advance scientific education through the following: (a) original investigation, (b) the dissemination of scientific knowledge, and (c) the stimulation of high scholarship in pure and applied science.

Kappa Pi

Kappa Pi, National Honorary Art Fraternity was installed at the college in 1962. Membership is opened to art majors of high scholastic standing. Its purposes are:

- To promote art interest among college students.
- To bring art departments of various schools closer together.
- To stimulate higher scholarship.
- To recognize potential professional ability.

Koppo Delto Pi

Kappa Delta Pi is an honor society in education which admits both men and women to membership. The Society is international and is composed of laureate, honorary, institutional, and alumni chapters. Membership is open to undergraduate students, graduate students, and faculty members. Undergraduates must be of junior classification. They are required to have an average above the upper quartile of the institution and at least nine quarter hours of course work in education. Candidates must possess desirable personal habits and leadership attributes. Membership is by initiation only.

Pi Delto Phi, Notional French Honor Society

The Pi Delta Pi Honor Society is open to all French majors and minors. Its purpose is to stimulate greater interest in French language and culture. The Society elects those students who have displayed a keen interest in the language and culture and have demonstrated their admiration for French.

Candidates must have completed twenty or more hours of French, including phonetics. They must have a cumulative average of 2.50 and an average of 3.00 in all French courses.

The local chapter is known as Beta Lambda, and is affiliated nationally.

Pi Omega Pi, Notional Business Education Fraternity

The local chapter of Pi Omega Pi is known as Gamma Phi and is open to students who have entered upon a teacher-training program in either typing and shorthand and in general business and bookkeeping. They must have reached the third quarter of the sophomore year with twenty-four quarter hours in business and in education subjects, with a superior rating (3.00); and they must have at least a medium rating (2.50) in all other subjects. The purpose of Pi Omega Pi are stated below:

1. To create, encourage, promote, and extend interest in scholarship.
2. To aid in activities for civic betterment in schools.
3. To encourage and foster high ethical standards in business and professional life.
4. To teach the ideal of service as the basis of all worthy enterprise.

Fraternities and Sororities

The following national fraternities have chapters at the College:

Alpha Phi Alpha
Kappa Alpha Psi
Phi Beta Sigma
Omega Psi Phi
Alpha Phi Omega

The following national sororities have chapters at the College:

Alpha Kappa Alpha
Delta Sigma Theta
Zeta Phi Beta
Iota Phi Lambda
Sigma Gamma Rho

Pan-Hellenic Council

The Pan-Hellenic Council is a federation of all fraternities and sororities on the campus. Its membership is composed of elected representatives from each Greek-letter organization. The main purpose is joint action for maintaining high standards in fraternity and sorority life at the institution.

OTHER ORGANIZATIONS

College 4-H Club

The Collegiate 4-H Club is composed of students who have had previous experiences as 4-H Club members in high school. An informal meeting of a business and social nature is held monthly. Honorary members may be elected to the club from time to time.

The Collegiate NFA Club

The Collegiate Chapter of the New Farmers of America is composed of agricultural students who are former NFA members or who are trainees enrolled in the teacher-training department of the School of Agriculture. The purpose of the collegiate chapter is to give training and experience to students who will later become teachers of vocational agriculture. Honorary members may be elected to the collegiate chapter of the New Farmers of America.

The Agricultural Association

The Agricultural Association is composed of agricultural students. It meets twice monthly for business and social purposes. Honorary members may be elected to the association from time to time.

Kappa Epsilon Society

The Kappa Epsilon Society is an organization whose purpose is to stimulate interest in home economics, encourage high attainment in scholarship, promote satisfying family relationships, and provide opportunities for awareness of current trends in home economics.

Membership is open to students majoring in home economics who maintain a scholastic average of 2.0. Entering freshmen are accepted in the society on a two-quarter probationary basis.

The College Bands

The several college bands occupy an important place in the life of the institution. The Band Department is complete with full instrumentation and equipment for the many varied activities of marching and concert organizations. Expert instruction in all band instruments is given by a staff of trained bandmasters. The organizations in the Band Department are as follows:

1. *Senior Bands*—The 100-piece marching group for the many athletic events that take place in the fall. This is open to those students who

have four or more years of experience on a band instrument. Also, the 80-piece symphony concert group is open only to those qualified students who successfully audition for entrance.

Foreign Language Clubs

Le Cercle Francais and *El Circulo Espanol* meet once a month during the academic year.

The Fortnightly Club

The Fortnightly Club offers its members an opportunity to discuss some of the literary works which have influenced the intellectual, spiritual, and cultural development of Western Civilization. Interested students will be encouraged to present their creative endeavors for discussion and evaluation.

The Debating Society

The Kappa Phi Forensic Society, better known as the Debating Society, is designed to stimulate interest in public speaking and debate. It is composed of college students who have distinguished themselves in public performances in these fields. The Society awards a certificate of merit to any graduating senior who has participated in non-varsity debates or who has otherwise rendered meritorious service to the Kappa Phi Kappa Forensic Society for at least two years.

The Richard B. Harrison Players

The drama society of the Agricultural and Technical College offers its members experience in writing, staging, and directing plays as well as experience in acting. The opportunity is advantageous not only to those who are interested in the theatre but also to those who, at some time in the future, may be asked to direct a play.

The Stylus

The Stylus is an organization composed of students interested in creative writing, has as its primary purpose the opening of new and wider avenues to the student who wishes to share his creative experience with others.

Choral Organizations

The College Choir, the Men's Glee Club, the Women's Glee Club, and the Concert Choir have won for themselves an enviable reputation for the genuine artistry of their work. These organizations, open to all qualified students, offer extra-curricular activity which is at once instructive and enjoyable.

The American Society of Tool and Manufacturing Engineers

Membership in the American Society of Tool and Manufacturing Engineers, Student Chapter No. 44 is open to students in mechanical engineering, mechanical technology, and related fields. Its purpose is to stimulate interest and to advance scientific knowledge in all phases of engineering related to manufacturing and the means and methods of applying such knowledge in practice and education.

Chapter programs are stimulated through close liaison with the Northern Piedmont Chapter and Education Director of ASTME.

Participation in the chapter activities offers outstanding opportunity and challenge for professional development.

The P.E.M. Club

The P.E.M. Club is an organization to promote professional growth and to encourage fellowship among physical education major and minor students. Membership is open to all students who have successfully completed preliminary requirements and have been accepted as majors or minors in the Department of Health and Physical Education.

The Dance Group

The Modern Dance Club presents an opportunity for students to learn and create various types of dances. Members of the group participate in local and regional programs annually. This organization is open to all interested students. Dance Club members are eligible for intramural awards.

The Student Nurse Organization

The Student Nurse Organization is called the TELOCA, (TEnder-LOving CARE), and functions in conjunction with the North Carolina Student Nurses Association. Its objectives are as follows:

1. To assist the student in her growth as a member of a democratic society.
2. To serve as a channel of communication between student nurses and faculty members.
3. To plan social and professional activities for the students.
4. To cooperate with the State Student Nurse Association of North Carolina and the American Nurses' Association in working for the professional and educational advancement of nursing.

Art Circle

The Art Circle is a student professional organization for those who are majoring or minoring in the Fine Arts. Its purpose is the development of further interest in the visual arts through study and application.

College Usher Board

The College Usher Board is composed of students. They serve at religious services and on special occasions such as Founder's Day, Christmas, and Easter Programs, Baccalaureate and Commencement Exercises.

ARMY ROTC AND AIR ROTC CADET WELFARE COUNCILS

The Army ROTC Air ROTC Cadet Welfare Councils are organizations composed of all students enrolled in the Army and Air ROTC program. The purpose of these organizations is to promote a spirit of cooperation among cadets and to promote civic activities in the interest of the college and the ROTC. Annual dues are \$4.00 payable upon initial registration for the school year.

Pershing Rifles

An expert drill team composed of ROTC cadet volunteers from the freshman and sophomore classes. It improves the coordination and precision drill ability of its members. The team performs at football games and gives other public exhibitions. In addition it functions for visiting dignitaries and provides an advertising media for A. & T. College. The Pershing Rifles Drill Team reflects the high standard and Esprit de Corps of the A. & T. College Army ROTC.

A&T College Rifle Team

The A. & T. College rifle team consists of Air ROTC cadets, Army ROTC cadets and other interested students. This is an organization to teach members proper firing techniques for record firing with the .22 caliber rifle. This team represents the college in competition with other ROTC units throughout the southeast and several trips are planned each year to nearby schools. It operates under the auspices of the central Inter-collegiate Athletic Association. An Army ROTC rifle team is maintained for competition within the Army ROTC program.

ROTC Band

Membership is confined to freshman and sophomore cadets who play band instruments. The Band plays for drill periods and ceremonies.

National Society of Scabbard and Blade

National Society of Scabbard and Blade: Company B, 10th Regiment of the National Society of Scabbard and Blade is a professional military fraternity with membership restricted to cadet officers. The fraternity has the mission of developing unity and Esprit de Corps within the cadet organization. The Scabbard and Blade Society assists the college and Department of Military Science in many activities.

ROTC Officer's Club

The cadet officers' club provides cadets with an opportunity to demonstrate organizational leadership ability and to promote social and cultural activities. Each advanced cadet is automatically a member of the club. The cadet officers' annual formal ROTC Banquet is one of the highlights of the college social season. This club is composed of both the Army and Air Force ROTC.

Arnold Air Society

The Arnold Air Society (AAS) is a private, professional, honorary organization of Air Force ROTC cadets, an affiliate of the Air Force Association (AFA), and a cadet controlled independent entity. The purpose of this organization is to provide a greater opportunity for cadets to become aware of and associated with Air Force life and functions, to provide valuable services to the AFROTC detachment through sponsorship of such corp activities as the corp newspaper, drill competition, rifle matches, high school visits, etc., and to provide a social outlet for the members of the Society.

Angel Flight

The Angel Flight is a national organization of female students sponsored by the AAS. The students are also associate members of the Arnold Air

Society and of the Air Force Association. One of 80 Angel Flights located on campuses across the nation, it has full support of the United States Air Force. Its members are selected from sororities and independent groups. Primarily a service organization, the Angel Flight co-sponsors many of the AAS activities. As the flight continues to expand in size and projects it remains one of the most unique college women's organizations in the nation. The "Celestial Beings" of the Angel Flight promote interest in the Air Force and the Aero-Space Age.

LOANS, SCHOLARSHIPS, AND PRIZES

KAPPA ALPHA PSI FRATERNITY SCHOLARSHIP—Alpha Nu Chapter of the Kappa Alpha Psi Fraternity annually awards a scholarship of \$50 to the highest ranking freshman during the fall quarter. In the event of a tie, the two top-ranking freshmen are awarded scholarships of \$25 each.

A. AND T. COLLEGE ALUMNI SCHOLARSHIPS—Four scholarship grants of \$1,000 each are given annually by the Agricultural and Technical College Alumni Association to entering freshmen students who earn the highest scores in special competitive college entrance examinations. The grants are made in annual installments of \$250 each, renewable upon the condition that the student maintains a certain minimum standard each year.

The examinations are administered during the spring at several testing centers throughout the State of North Carolina. Announcement of time and place of the examinations is made through the high schools and publicity media. Prospective graduates of accredited high schools in or out of state, ranking in the upper fourth of their classes, are eligible to take the examinations without charge.

KROGER SCHOLARSHIPS—The Kroger Scholarship Plan provides a scholarship each year to a freshman majoring in home economics. Awards are made on the basis of scholastic achievement in high school, leadership qualities demonstrated, and financial need.

SEARS, ROEBUCK FOUNDATION SCHOLARSHIPS—The Sears, Roebuck Foundation makes available each year scholarships to freshman students who enroll in the School of Agriculture. These scholarships are awarded to majors in agriculture, on the basis of scholastic aptitude of the applicants. Preference is also given to those who would be unable to attend college without this aid.

SMITH-DOUGLAS N.F.A. SCHOLARSHIPS—One scholarship is given annually to aid an incoming freshman who majors in agriculture. A recipient receives \$150 during his freshman and sophomore years, and \$100 during his junior and senior years, provided he maintains a satisfactory scholastic record. Applicants must be residents of North Carolina, and must have been active members of a local chapter of the New Farmers of America. The scholarship is awarded on the basis of need, scholastic aptitude, potentialities for leadership, and achievement in farming. Applications should be filed with the Executive Secretary of the N.F.A. by June of each year.

BURLINGTON INDUSTRIES FOUNDATION—The Burlington Industries Foundation provides two \$1,000 scholarships for students in engineering. These are paid over a period of two years at the rate of \$500 each for the junior and senior years of college. The students are selected by

the engineering faculty on the basis of scholarship, leadership, and financial need.

THE CHARLES L. COOPER AWARD—Mu Psi Chapter of the Omega Psi Phi Fraternity presents annually this award in memory of Dr. Charles L. Cooper, a former professor of industrial education at the Agricultural and Technical College. It is presented to the student in industrial arts with the highest average above two points. (2.00)

THE REGISTER AWARD—As a means of promoting a wider interest and greater activity on the part of the students in the field of journalism, the College *Register* awards a gold key to those members of the graduating class who complete a period of at least two years of meritorious service as members of the *Register* staff.

ALUMNI ATHLETIC AWARD—The Philadelphia branch of the Agricultural and Technical College Alumni Association awards a gold medal each year to the student of the graduating class making the best record in major intercollegiate sports.

ALUMNI SERVICE AWARD—The Gate City Chapter (Greensboro) of the Agricultural and Technical College Alumni Association makes an award each year to that member of the graduating class, voted by the Executive Committee of the Faculty as having rendered the "most distinctive service to the College and to the community."

KAPPA PHI KAPPA KEY—The Kappa Phi Kappa Key was first awarded in 1928 by the Debating Society. The key is awarded to each member of the graduating class who has been a speaker on the College varsity debating team for two years.

DEBATING TROPHY—The Rand-Hawkins-McRae debating trophy was provided by Messrs. J. M. Rand, J. A. Hawkins and S. D. McRae, graduates of the College, Class of 1906, and is awarded annually to the members of the graduating class who have completed at least three years of varsity debating.

FRESHMAN-SOPHOMORE DEBATING TROPHY—The College presents to the winning team at the annual Freshman-Sophomore debate, a debating trophy with the name of the class and the year of the debate. This trophy signifies the increasing interest in oratory and research, and serves as an incentive for freshman and sophomore achievement in the forensic arts.

BROTHERHOOD AWARD—The Brotherhood Award of \$50 is presented by Mr. Ralph Johns of Greensboro to the student who has done most to promote brotherhood and goodwill.

THE RALPH JOHNS ATHLETIC SCHOLARSHIP—The Ralph Johns Athletic Scholarship of \$100 is presented by Mr. Ralph Johns of Greensboro, North Carolina, to foster sportsmanship, leadership, and manliness in competitive sports.

MEDALS

The John Merrick Medal will be awarded to the student completing the four-year mechanical course with the best record in the college department.

The William Andrew Rhodes Medal will be awarded to the student having good character and making the best record in musical activities during the school year. This award is sponsored by Dr. William Andrew Rhodes, composer, teacher, and conductor.

The M. F. Spaulding Medal will be awarded to the student completing the full four-year course in agriculture with the best record.

The Saslow's, Inc. Medal will be awarded (a) to the member of the graduating class who completes the four-year course in the School of Education and General Studies with the best record, and (b) to the student who graduates with the best record in social sciences.

STUDENT LOAN FUND

The Agricultural and Technical College Student Aid Fund was established by the Student Council of 1946-1947 to provide a source of revenue for loans to deserving students. This fund is supported by contributions from students, faculty members, and campus organizations. Any regular term student, duly registered, is eligible to apply for aid through this fund.

THE NATIONAL DEFENSE STUDENT LOAN PROGRAM

The Agricultural and Technical College participates in the National Defense Student Loan Program. This program was authorized by Public Law 85-864, the National Defense Education Act of 1958. It provides a loan fund from which undergraduate and graduate students may borrow on reasonable terms for the purpose of completing their higher education. A student must be a citizen of the United States, enrolled as a full-time undergraduate or graduate student in order to be eligible for a loan. Application forms and additional information may be obtained from the Administrative Assistant to the President, The Agricultural and Technical College, Greensboro, North Carolina.

NORTH CAROLINA RURAL REHABILITATION CORPORATION STUDENT LOAN PROGRAM

Loans under this program are available to needy and worthy North Carolina farm boys and girls who plan to study agriculture or home economics. The loans bear interest at the rate of four percent per annum. Application forms and additional information may be obtained from North Carolina Rural Rehabilitation Corporation, Post Office Box 2403, Raleigh, North Carolina.

DEPORTMENT

Students will be expected to conduct themselves properly at all times. Any student who shows an unwillingness to conform to the rules and regulations that are prescribed or that may be prescribed to govern the student body will be asked to withdraw from the institution. Furthermore, any student whose deportment or behavior is not in harmony with the ideals or interests of the College will be suspended or expelled.

A student automatically forfeits his privilege of working for pay at the College when, for any reason, he is placed on probation because of misconduct.

FINANCIAL INFORMATION

GENERAL EXPENSES

The fees and charges listed herein are applicable to all students, graduate and undergraduate. Travel, clothing, and other personal expenses are not included.

TUITION FEES & CHARGES FOR REGULAR SESSION NINE MONTHS TERM

Regular Student	Day	Boarding Only	Boarding Lodging
Tuition, North Carolina Students	\$ 201.00	\$ 201.00	\$ 201.00
(Tuition, Out-of-State Students)	(453.00)	(453.00)	(453.00)
Registration Fee	15.00	15.00	15.00
Lodging			150.00
Board		270.00	270.00
Laundry			27.00
Medical	18.00	18.00	18.00
Book Rental	36.00	36.00	36.00
Athletics & Recreation (Includes Lyceum and	39.00	39.00	39.00
Special Student Activity Fees)			
Total North Carolina Students	309.00	579.00	756.00
(Total Out-of-State Students)	(561.00)	(831.00)	(1,008.00)
Payments Due Quarterly			
North Carolina Students	103.00	193.00	252.00
Out-of-State Students	187.00	277.00	336.00

INCIDENTAL FEES AND DEPOSITS

Admission Reservation Deposit (Non-refundable—payable with application; applied on account after entrance)	10.00
R.O.T.C. Uniform Deposit—Male students (payable upon registration in military classes)	10.00
Senior Engineering Inspection Tour Fee	50.00
Dormitory Key Deposit—Refundable	1.00
High School Deficiency Fee Per Course Per Quarter (Payable in advance of course registration)	4.00
Late Registration Fee	5.00
Practice Teaching Fee (other than Vocational Agriculture)	35.00
Driver Education Laboratory Fee Per Course—Regular Session or Summer School	6.00
Masters Thesis Binding Fee—Three Copies	20.00
Certificate Fee—Trades	4.00
Diploma Fee—Bachelor's	5.00
Diploma Fee—Master's	15.00
Cap and Gown Rental Fee—Bachelor's (with hood, add \$2.60)	5.25
Cap and Gown Rental Fee—Master's (hood included)	8.75
Lost Meal Tickets Replacement Fee (per month)	5.00
Lost Activity Tickets Replacement Fee (per quarter)	1.00
Transcript of Record (after first one)	1.00
Day Student Infirmary Meal Charges (per meal taken while confined)50
Ambulance Service (each trip)	3.00
Deferred payment fee (per quarter)	2.00

PART-TIME STUDENT FEE RATES

Tuition—North Carolina Students (per quarter hour—maximum \$67.00 per quarter)	5.60
Tuition—Out-of-State Students (per quarter hour—maximum \$151.00 per quarter)	12.60
Registration Fee (per course—maximum \$5.00 per quarter)	1.00
Book Rental Fee (per quarter hour—maximum \$12.00 per quarter)	1.00
Athletic & Recreation Fee (per quarter hour—maximum \$13.00 per quarter)	1.10
Medical Fee (per quarter hour—maximum \$6.00 per quarter)50
Other Fees: Registration, Lodging, Board and Laundry, same as full-time students.	

SUMMER SCHOOL FEES—GRADUATE AND UNDERGRADUATE STUDENTS

	4 Weeks	6 Weeks	10 Weeks	Part-Time
Tuition, North Carolina Students	\$33.60	\$50.40	\$67.00	5.60 per qtr. hr.
(Tuition—Out-of-State Students)	(75.60)	(113.40)	(151.00)	12.60 per qtr. hr.
Registration Fee	1.00	1.00	1.00	1.00 per registration
Lodging	17.00	25.50	42.50	4.25 per week
Board	42.00	63.00	106.50	.50 per meal
Medical	2.40	3.60	6.00	2.40 minimum
Book Rental	6.00	9.00	12.00	1.00 per qtr. hr.
Student Activity Fee	1.00	2.00	3.00	1.00 minimum
Tuition, North Carolina Students	33.60	\$ 50.40	\$ 67.00	\$ 5.60
(Total Out-of-State Student)	(145.00)	(217.50)	(322.00)	

PAYMENTS

Total quarterly fees and charges are due and payable in full on or before registration of each quarter or term. Remittances of money for school expenses should be made by certified check, bank draft, postal money order, or cash if paid in person or by registered mail and made payable to A. & T. College. All such payments should be addressed to Cashier's Office, A. & T. College, Greensboro, North Carolina 27411.

Installment payments are available as follows which includes a deferred payment fee of \$2.00 per quarter.

North Carolina Students	Day	Boarding Only	Boarding & Lodging
Entrance Payments: Fall, Winter and Spring Quarters Each	\$ 103.00	\$ 122.00	\$ 122.00
Second Installment: 10th of 1st month following registration		36.50	66.00
Third Installment: 10th of 2nd month following registration		36.50	66.00
Total for each quarter—North Carolina Student	103.00	195.00	254.00
Out-of-State Student			
Add to entrance payment each quarter	84.00	84.00	84.00
Total for each quarter—Out-of-State Student	187.00	279.00	338.00

Summer school students enrolling for either the six week or ten week session may elect to pay their accounts in two equal installments subject to the addition of the \$2.00 deferred payment charge. The first installment must be paid upon registration. The second installment is due and payable one month after registration.

Diplomas and transcripts of records are withheld until the student has paid in full all fees and charges due the College. Further, a student in debt to the College in any amount will not be admitted to final examinations in any course, nor will he be permitted to register for any subsequent quarter until his obligations are paid. Failure to make scheduled payments when due will cause the student to be dropped from school for non-payment of fees.

AUDITORS

Auditing of courses is open to any person, without credit, upon the payment of all regular applicable fees. Currently enrolled full-time students may audit courses without additional charge. An auditor is not required to participate in class discussions, prepare assignments or take examinations.

REFUNDS

Refunds, upon official withdrawal of a student, will be made less any amounts due the College as follows:

1. Lodging: Days room not occupied, at the rate of sixty cents per day from time of official withdrawal.
2. Board: Unused meal tickets at the rate of thirty-five cents from date of official withdrawal.
3. Laundry: Value of unused laundry tickets at the time of withdrawal not to exceed \$3.00 per month.
4. Tuition, Registration, Medical, Book Rental, and Athletic and Recreation Fees:
 - 90 per cent when withdrawal is within one week of registration date.
 - 75 per cent when withdrawal is within two weeks of registration date.
 - 60 per cent when withdrawal is within three weeks of registration date.
 - 45 per cent when withdrawal is within four weeks of registration date.
 - 30 per cent when withdrawal is within five weeks of registration date.
 - 15 per cent when withdrawal is within six weeks of registration date.
 - None when withdrawal is after six weeks.

SPECIAL NOTICES AND EXPLANATIONS

The College reserves the right to increase or decrease all fees and charges as well as add or delete items of expense without advance notice as circumstances, in the judgment of the administration, may require.

Room and board rates are based on the average cost of operations for the entire school year which includes provision for services only during the scheduled operational days. Allowances have, therefore, been made for holidays when these facilities are closed.

With the exception of special cases in which permission has been obtained from the Dean of Students, students from outside the city of Greensboro are required to reside in the College dormitories and take board in the College cafeterias.

Students' property in dormitories and other college buildings is at the sole risk of the owner and the College is not responsible for loss or theft of, or damage to such property, arising from any cause.

Students are required to pay for any loss of, or damage to College property at replacement cost due to abuse, negligence or malicious action, in addition to being subject to disciplinary action.

Book rental system operation: Books are issued only for courses listed on the students approved schedule. Reference books, workbooks and supplies are not provided. Proof of official class changes must be presented upon reissue request for other books together with the return of texts issued for courses dropped. All rental books must be returned to the Bookstore on or before the last day of official scheduled examinations to establish eligibility for the continued rental of books for a succeeding quarter. Students failing to return books within two days following the close of the quarter of issue will be charged the full replacement cost for each book not returned. Students withdrawing during a quarter must return all rental books on the day of official withdrawal. Provision for rental text purchases can be made directly at the Bookstore.

Personal spending money should be sent directly to and made payable to the student in the form of money orders or certified checks. The College cannot cash personal checks for students in any amount.

* SPECIAL NOTICE TO KOREAN VETERANS

Public Law 550, 82nd Congress, differs from the law which provided educational benefits to veterans of World War II. One difference is the fact that under the law, the Veterans' Administration pays no money to the school for veterans' training. All money is paid directly to the veteran in the form of a monthly subsistence allowance as follows:

Veteran with no dependents	\$110
Veteran with one dependent	135
Veteran with two or more dependents	160

The veteran, therefore is responsible for the meeting of all his expenses. Usually two or three months elapse before the veteran receives his first check, so the veteran should be prepared to meet his expenses for the first three months. It is advisable to have, in addition to the money for regular College fees, enough to purchase supplies and incidentals.

Public Law 550 allows only one change in program. Therefore, the veteran should obtain vocational and educational counseling through the Veterans' Administration or through the College before enrolling in college. The veteran may obtain counseling through the Veterans' Administration by simply checking item No. 14 "yes" on the Application for Program of Education and Training form. Guidance may be obtained at the College by visiting the College Guidance Center.

* This does not apply to disabled Korean Veterans.

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GENERAL ACADEMIC REGULATIONS

Admission

A student who wishes to enter The Agricultural and Technical College of North Carolina for the first time will be considered for admission if:

1. The student has graduated from high school with not less than 16 units of credit.
2. The student is transferring from another accredited college or university and is in good standing and has a cumulative average equivalent to "C" or above.
3. The student has graduated from an accredited college or university and wishes to enter the Graduate School.

Procedure for New Students

1. Write to the Director of Admissions for an application for admission. Fill it out properly and return it to the Office of Admissions.
2. Arrange for the transcript of academic records from high school and/or college or university previously attended to be sent directly to the Director of Admissions.
3. All candidates for admission to the freshman class must take the Scholastic Aptitude Test prior to official registration. This test is administered by the College Entrance Examination Board several times each year at centers throughout the United States and many foreign countries. Testing dates are regularly scheduled in December, January, March, May, and August. Applicants should obtain Bulletins of Information, including application blanks, directly from their high school principals or guidance counselors. If these are not available in the school, applicants should write directly to the College Entrance Examination Board, Box 592, Princeton, New Jersey, for a list of testing dates and centers so that assignments may be made to the center nearest to the applicant's residence.
4. After the completed application form, transcripts, and test results are received, they will be evaluated, and if approved, the student will receive a letter of admission and a permit to register. If the application for admission is not approved, the applicant will be notified.
5. Each candidate for the Freshman Class, to reside on the campus, is expected to arrive on the campus the day preceding the date designated on the college calendar for freshman orientation. All freshmen should be present by 8:00 A.M. on the first day.

The permit to register furnished beforehand by the Director of Admissions indicating the School or Department in which the applicant wishes to register must be ready for presentation to proper authorities. The dates indicated in the college calendar for freshman orienta-

tion and registration as well as those for upper-classmen must be strictly observed. Those seeking registration after the scheduled date must pay a late registration fee of \$5.00.

ADMISSION REQUIREMENTS

Entrance Units

High School graduates should present the following entrance credits, distributed as shown below:

Subject	Number of Units
English	4
*Mathematics	2
Social Studies (Preferably U. S. History)	1
Natural Science	1
Electives	8
Total	16

The elective units may be selected from any other high school courses. However, students may not present more than two (2) units in activity courses, such as music and physical education, and not more than four (4) units in vocational courses.

Students who plan to major in science or business must have one unit of algebra and one unit of plane geometry.

Students who plan to major in engineering, mathematics and physics must have one and one-half units of algebra, one unit of plane geometry, and one-half unit of solid geometry.

Conditional Admission

Students who present sixteen (16) acceptable entrance units but do not meet the entrance requirements in mathematics listed immediately above must take special non-credit courses to meet these deficiencies. This deficiency removal must begin immediately upon enrollment in the first year of study.

Admission to the School of Nursing

Applicants for admission to the School of Nursing should write directly to the Dean, School of Nursing.

1. These applicants will receive special application forms and instructions.
2. These forms must be returned to the Dean, School of Nursing, and two (2) transcripts of the high school and any college record must be sent directly from the school or college previously attended to the Dean.

* Students who plan to major in Nursing or Home Economics may enter with only one unit of mathematics.

3. In addition to the credentials mentioned above, all applicants are required to take the Pre Nursing and Guidance Examination and must make a satisfactory score on this examination.
4. Upon receipt of the completed application form and the required credentials, the Dean of the School of Nursing will send to the applicant a schedule of dates and places where the Pre-Nursing and Guidance Examination may be taken. Successful candidates will receive their admission papers from the Dean, and other candidates will be informed as to why they are not admitted to the nursing program.
5. Candidates who fail the Pre-Nursing and Guidance Examination, but who present satisfactory high school records and pass the Scholastic Aptitude Test, may request that their application papers be transferred to the Director of Admission and request consideration for admission to another specified School of the College.

Transfer Students

1. Applications from transfer students cannot be considered until all credentials are received from the high school and each other institution previously attended. In addition, there must be a statement of good standing and honorable dismissal from these institutions.
2. Previous college records must show a cumulative average not below "C". Even with a cumulative average of "C" or above, no course is accepted in which a grade below "C" was originally earned.
3. Accepted courses are recorded to the student's credit, but grade points are not calculated on the transferred courses. The grade points for a transfer student are calculated only on the courses taken here and a student must do more than half of his required studies here in order to be considered an honor graduate.

Special Students

In exceptional cases, an applicant of mature years, with special training along particular lines or of long experience in special fields of knowledge, may be admitted to the college to pursue a non-degree program or to study certain subjects as special students. Even though they do not satisfy regular entrance requirements, such persons must submit evidence of ability to profit from such a program and must do a passing grade of work or forfeit the privilege accorded them. These persons must:

1. Request of the Director of Admissions an application form, fill it in and return it with:
 - (A) Records of previous educational experiences.
 - (B) Other documentary evidence of ability to pursue the courses desired.
 - (C) A statement of the applicant's objectives or purposes in pursuing studies chosen.

Filing of Credentials

Applicants should take the proper steps to see that their credentials, (transcripts, etc.), are sent to the Director of Admissions as early as possible, preferably not less than thirty (30) days before the beginning of the quarter in which they plan to enroll.

Re-Admission of Former Students

Former students who interrupted their studies for one or more quarters before graduation need not fill out another application form, but must write to the Director of Admissions, properly identify themselves, and request re-admission except in cases of dismissal for disciplinary or scholastic reasons.

Students who were dismissed for scholastic reasons are to write to the Dean of Instruction and request processing for possible re-admission and await a reply with a permit to register before presenting themselves for registration.

Students whose attendance has been interrupted by the College for disciplinary reasons must apply to the Dean of Students if they wish a re-study of their cases for possible re-admission.

Registration

The registration dates for each quarter are listed on the college calendar at the beginning of this catalog. Students are urged to register promptly on the dates shown and avoid the penalty of paying the LATE REGISTRATION FEE of \$5.00.

The full payment of fees is a part of the registration process and no student is registered and entitled to go to classes until the prescribed fees are paid.

CLASSIFICATION OF STUDENTS

(Freshmen)

To be classified as a freshman, a student must have met the minimum standards for admission to A. and T. College. All entering freshmen will be required to take placement tests in English and Mathematics and Reading. All who fail will be assigned a remedial course. Students will be assigned to the Reading Classes on the bases of their performance on the Reading Test.

(Sophomore)

To be classified as a sophomore, a student must have completed a minimum of fifty hours of work open to freshmen and must have earned at least a 1.50 average.

(Junior)

To be classified as a junior, a student must have completed one hundred quarter hours of work required of sophomores, with at least a 1.70 average. No student will receive junior classification until all required freshman and sophomore courses have been completed.

(Senior)

To be classified as a senior, a student must have completed at least one hundred and fifty hours of required and major work, with at least a 1.90 average. For graduation, a student must have an overall average of 2.00.

STUDENT LOAD AND SCHOLASTIC STANDARDS**(Quantitative)**

The unit of credit is the quarter hour.

Full-time students are those who enroll for a minimum of twelve (12) hours of credit per quarter.

The maximum load a student may carry is twenty-one (21) hours per quarter, including non-credit courses or evening courses. At least a "C" average is required to take more than 18 hours.

(Qualitative)

Students are expected to earn and maintain a general average of at least "C", having a grade point average of 2.00 on the four-point (4.00) system shown below:

(Grading System)

		Grade Points
93-100—A	Excellent	4
82- 92—B	Good	3
71- 81—C	Fair	2
60- 70—D	Poor, but Passing	1
Below 60—F	Failure	0
W	Withdrew	
I	Incomplete	

To continue at The Agricultural and Technical College, a student must meet the qualitative standards that are required. The qualitative averages are computed on work attempted and on a cumulative basis. The following graduated scale of cumulative grade point averages must be maintained:

Periods	Averages
At the end of three (3) quarters	1.50
At the end of six (6) quarters	1.70
At the end of nine (9) quarters	1.90
At the end of twelve (12) quarters	2.00

If at the end of any quarter a student's grade point average falls below the accepted minimum for his period of residence, he will be sent a descriptive report of his performance and a "warning" by the Director of Admissions. The parents or guardians will be notified. At the end of the next quarter, he will be placed on academic probation if he has not met the minimum requirements of the institution. At the end of the following quarter, such a student will be suspended from the institution if his average has not been met. After one quarter's suspension, the student may return to the college on probation. Failure to attain the minimum average required, however, will result in permanent dismissal from the college.

CLASS ATTENDANCE

It is the regulation of the College that teachers keep accurate records of class attendance. Regular and punctual attendance is required of all students. A student who fails to attend classes regularly may be subject to disciplinary action. The following regulations will be observed with respect to class attendance:

When a student is absent from class without approved excuse, more times than the number of quarter hour credits of the course, three (3) quarter hours will be added to his graduation requirements as a penalty. A student who receives a penalty for being absent in more than two classes will be dropped and will lose credit for the quarter. The second time a student is dropped for being absent from class, he will receive a permanent dismissal from the College.

In order to receive credit for a course, a student must be present for two-thirds of the class session, regardless of excused absences. All excuses must be approved by the Dean of Students.

QUARTERLY EXAMINATIONS

A final examination will be required as a part of every course. An examination schedule showing time and place of meeting of each course and section will be published quarterly. Schedules so published will be followed without variation except by special permission of the dean of the school in which the course is offered.

CHANGES IN SCHEDULES

A change in a student's class program may be made only with the consent of the Dean of the School in which the student is enrolled. The student must obtain written permission from his Dean, stipulating the specific changes to be made, then report to the Office of the Director of Admissions to execute the proper forms in making the change.

Students are allowed a period of one week at the beginning of each quarter for making these changes.

CHANGING SCHOOLS

Students may transfer from one School of the College to another with the written approval and acceptance of the Deans of the Schools involved. The proper forms on which to apply for such a change are to be obtained at the Office of the Director of Admissions and executed at least six weeks prior to the beginning of the following quarter.

FAILURES

At the very first opportunity, a student must repeat a required course which he has failed, unless the Dean of his School authorizes a suitable substitute course. A course which is pre-requisite to another in a sequence must be passed before taking the next course in the series.

WITHDRAWAL FROM COLLEGE

A student who wishes, or is asked to leave the College at any time during the quarter shall fill in and file official withdrawal forms. These forms are obtained at the Office of the Dean of Students. They should be completely executed in quadruplicate, (quintuplicate for veterans) and taken to the Cashier's Office. For failure to execute these forms, a student automatically incurs the penalty of receiving an "F" for each course in which he is enrolled that quarter.

HONOR ROLL

To encourage scholarship and integrity, the College publishes an Honor Roll at the end of each quarter. Regular students whose average grade in all courses is "B" shall be eligible for the Honor Roll.

DEGREES AND GRADUATION REQUIREMENTS

Graduation from The Agricultural and Technical College involves the satisfaction of the following requirements:

1. The candidate for a degree must have selected a specific curriculum, having the approval of the Dean of the School in which he is registered. This curriculum must have been completed.
2. Whether registered in Agriculture, Education and General Studies, or Engineering, he must complete at least 200 quarter hours and 400 grade points.
3. The credit hours must aggregate at least 200, including the required courses in military science and physical education. The grade points must equal 2 times the number of credit hours undertaken whether passed or failed. After securing 200 credit hours, if the student is deficient in grade points, he must take additional courses to secure these points. The student must obtain an average of 2.00 or more in his major field. A minimum of one year of residence is required.
4. It is the aim of the institution to send forth men and women who are fit representatives. To this end, the College reserves the right to refuse to admit any student to the Senior Class or to graduate anyone who though qualified by class record may otherwise seem unfit.
5. Payment of diploma fee of five dollars (\$5.00) must be made to the Cashier preceding graduation.
6. Students in the graduating class must clear all conditions by the end of the quarter preceding graduation.
7. Candidates for graduation must file an application for graduation upon the form provided in the Office of the Director of Admissions at least four months prior to the date they expect to graduate.
8. Candidates for certificates in two-year or terminal programs are required to attain at least an over-all "C" average to fulfill requirements for graduation.

GRADUATION WITH HONORS

Graduation honors are awarded candidates who complete all requirements for graduation in accordance with the following stipulations: (1) Those who maintain a general average within the range of 3.00 to 3.24 will receive CUM LAUDE, (2) those who maintain a general average within the range from 3.25 to 3.49 will receive MAGNA CUM LAUDE, and (3) those who maintain a general average within the range of 3.50 to 4.00 will receive SUMMA CUM LAUDE. Publication of honors and scholarships is made at graduation and in the College Catalog.

DEGREES

All students successfully completing any of the four-year courses of study shall be entitled to the degree of Bachelor of Science.

1. Those graduating from a four-year curriculum offered in the School of Engineering shall be entitled to the Bachelor of Science degree in Architectural Engineering, Electrical Engineering, Mechanical Engineering, Engineering Mathematics, Engineering Physics, Business, Fine Arts, or Industrial Education.
2. Those graduating from a four-year curriculum in the School of Agriculture shall be entitled to the Bachelor of Science degree in Agricultural Chemistry, Biology or Home Economics.
3. Students successfully completing a curriculum in the School of Education and General Studies shall be entitled to the degree of Bachelor of Science.
4. Those graduating from the four-year curriculum in the School of Nursing shall be entitled to the degree of Bachelor of Science in Nursing.

The Master of Science degree will be awarded those meeting requirements for same.

OUT-OF-STATE STUDENTS

The following method is to be applied by all public institutions of higher education in determining the in-state or out-of-state residency status of students:

1. If the student's record upon original admission shows that he graduated from (or, if not a graduate, that he last attended) a high school located in North Carolina, and the student claims North Carolina residency, such student will be presumed to be a bona fide resident of North Carolina unless facts suggesting the contrary appear at that time or later during the student's attendance. If such contrary information appears, the business office will inquire into the facts and will require the student to submit, in writing, satisfactory proof that at the time of his original registration his claim to North Carolina residency was based upon substantial facts exclusive of the convenience of his education.

2. If the student's record upon original admission shows that he graduated from a high school (or, if not a graduate, that he last attended a high school) located outside the State of North Carolina, the student will be presumed to be an out-of-state student at the first and all subsequent registrations unless he asserts in writing a claim to North Carolina residency supported by satisfactory written proof that his claim is based upon substantial facts exclusive of the convenience of his education.

**Qualification as to Certain Facts Submitted
as Proof of Residency**

Proof of such facts as that (a) claimant has registered to vote in North Carolina (b) has an established local household for his dependents (c) has changed his motor vehicle registration in this State (d) has been assessed or has paid local or State taxes or (e) is currently employed in North Carolina, will not be adequate proof of bona fide residency unless it is shown that such facts existed continuously for the six months immediately preceding original admission to a public or private institution of higher education in North Carolina. When such fact has developed or private institution of higher education in North Carolina, it is to be regarded as developing in consequence of the student's being in North Carolina for the purpose of education rather than for the purpose of bona fide residency. It is the student's obligation to supply any proofs needed to support his claim.

SCHOOL OF AGRICULTURE



***Department of Agricultural Economics and Rural
Sociology***

Department of Agricultural Education

Department of Animal Industry

Department of Plant Science and Technology

Department of Biology

Department of Chemistry

Department of Home Economics

SCHOOL OF AGRICULTURE

BURLEIGH C. WEBB, *Dean*

Objectives and Philosophy. The School of Agriculture embraces the fundamental philosophy of the Land-Grant College idea and accepts its obligation to provide a program of resident and off-campus instruction adequate to serve the general needs of an interdependent rural-urban society and the special needs of all those who stand to benefit from instruction in agriculture, home economics, and the natural sciences including biology and chemistry; to extend the frontiers of knowledge and the professional competencies of its faculty and academic proficiency of its students through research; to share its resources with its clientele through organized short courses, conferences, and related activities designed to meet special needs.

Departmental Organization. The School of Agriculture is organized into departments involving Technical Agriculture—(1) Agricultural Education, (2) Agricultural Economics, (3) Animal Industry, (4) Plant Science and Technology; (5) the Department of Home Economics; and the departments of the natural sciences—(6) Biology, and (7) Chemistry.

State Subject-Matter Specialists in Agriculture, Supervisory and Administrative Personnel of Agricultural and Home Economics Extension Service, and Vocational Agriculture, comprise associate departments.

Requirements for Admission. The requirements for admission to the School of Agriculture are the same as the general requirements for admission to the College.

Requirements for Graduation. The requirements for graduation for the Bachelor of Science Degree in (1) Agriculture, (2) Biology, (3) Chemistry, or (4) Home Economics are as follows:

1. The student must have satisfied the course requirements of an approved curriculum in an organized department administered by the School of Agriculture.

2. The student must have earned a cumulative average quality of at least a "C" in his major courses and in his overall academic program.

Curricula. The curricula of the School of Agriculture are designed to provide the students who pursue courses of instruction leading to the Bachelor of Science Degree (1) a fundamental understanding of the basic physical and biological sciences which are applied to their respective majors; (2) liberal educational experiences offered by the College; and a (3) knowledge and competency required for specialization in any one of the major offerings:

Major offerings are as follows:

A. Technical Agriculture

1. Agricultural Business
2. Agricultural Education

3. Agricultural Science
 4. Agricultural Technology
- B. Home Economics
1. Clothing, Textiles and Related Art
 2. Foods and Nutrition
 3. Home Economics Education
 4. Institution Management
 5. Nursery School and Kindergarten Education
- C. Natural Sciences
1. Biology (Professional Major)
 2. Biology (Teaching Major)
 3. Chemistry (Professional Major)
 4. Chemistry (Teaching Major)

A. The curricula and courses in Technical Agriculture are related to career opportunities in the various fields: (1) Farm Production and Technology, (2) Off-Farm Businesses and Industries related to farming and (3) Research and Education. In recognition that each of these fields requires a body of knowledge common to all, and that each has a body of knowledge distinctly peculiar to it, the curricula in Technology, Business, and Science are designed to provide certain required courses and at the same time provide a rather wide degree of flexibility which the student may use to his advantage by selecting courses in consultation with his faculty advisor that will meet his particular needs and objectives. These curricula are designed to serve the industry of agriculture specifically and the public in general. They provide educational opportunities for students interested in the many sectors of agricultural industries and the intellectual background on which students can build satisfying lives through service.

Agricultural Business. The Agricultural Business major is designed for those students interested in the business industry phase of Agriculture. The objective of the program of instruction in this major is to equip students for employment in those industries that furnish supplies and services to farmers and those that process, store, distribute, and merchandise the products of the farm. Graduates in this major are specially equipped for employment as salesmen, managers, public relations and technical supervisors with companies dealing with feed, seed, fertilizer, food processing and other such industries.

Students who major in Agricultural Business will be expected to develop high competency in the area of Economics and Business, including selected courses that form a progressive sequence, or a combination that satisfies logical objectives. The major in Agricultural Business may at the beginning of the sophomore year, plan with his faculty advisor a program of specialization in Agricultural Economics or Horticulture.

Agricultural Education. The curriculum in Agricultural Education offers the student a program of study designed to develop competency in teaching and related types of work. The curriculum is especially suited for the student who aspires to become a teacher of Vocational Agriculture or Agricultural Extension.

The student who wishes to major in Agricultural Education should, preferably at the beginning of the sophomore year or before his junior year, plan with his faculty advisor a course of study which will meet the certification requirements of teachers of Vocational Agriculture in North Carolina.

Agricultural Sciences. The objective of this program is to provide an opportunity for the student to develop competency in the scientific disciplines essential to graduate study, scientific agriculture, and research.

The major in Agricultural Sciences may, in the beginning of the sophomore year, plan with his faculty advisor a program for specialization in one of the following areas: Agricultural Engineering, Soil Science, or Plant Science. The students' program will include appropriate supporting courses in Biology, Chemistry, Physics, Engineering, and Mathematics.

Agricultural Technology. The curriculum in Agricultural Technology provides an opportunity to develop knowledge and skills in a specialized area of agricultural production. The program of instruction for the student who pursues this program places emphasis on the development of competency in the management and operation of commercial farms or in related industry that require specialized knowledge and technical skills.

The major in Agricultural Technology should, at the beginning of the sophomore year, plan in consultation with his faculty advisor courses of study for specialization in one of the following areas: Animal Husbandry, and Dairy Manufacturing.

B. The curricula leading to the Degree of Bachelor of Science in Home Economics are offered in the area of (1) Clothing, Textiles and Related Art, (2) Foods and Nutrition, (3) Home Economics Education, (4) Institution Management, and (5) Nursery School and Kindergarten Education.

Outlines and curricula are carried in this Bulletin under the heading of Department of Home Economics.

C. Two curricula are offered leading to the Degree of Bachelor of Science in Biology. The Professional Curriculum is designed especially for the student who plans to study medicine, dentistry, veterinary medicine, or do graduate work and research.

The Teaching Curriculum is designed to prepare science teachers for secondary schools.

The Freshman program and course requirements for majors in Biology are listed in this Bulletin under the heading of the Department of Biology.

The Professional Major and the Teaching Major are offered leading to the Degree of Bachelor of Science in Chemistry.

The Professional major is for the student who plans to do graduate work and research and make a career in the field of Chemistry.

The Teaching Major is designed to develop competency in the area of Chemistry and in education for certification as science teachers in secondary schools.

The Freshman program and course requirements are outlined in this Bulletin under the Department of Chemistry.

Graduate Instruction. The School of Agriculture offers the Master of Science Degree in Chemistry and in Agricultural Education. In addition, students seeking the Master of Science Degree in Education may be certified in biology or chemistry. Graduate level courses that support the graduate programs in Agricultural Education are offered by the several departments in Technical Agriculture.

Persons interested in the graduate programs should refer to the graduate bulletin.

CURRICULUM IN AGRICULTURAL BUSINESS

Option A: Agricultural Economics

Option B: Horticulture

<i>Course and No.</i>	Freshman Year		
	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Botany 101			4
English 101, 102, 103	5	5	5
General Agriculture 101, 102, 103	1	1	1
Mathematics 111, 112 113	5	5	5
Physical Education	1	1	1
Physical Science 101, 102	5	5	
ROTC	1	1	1
	<hr/> 18	<hr/> 18	<hr/> 17

<i>Course and No.</i>	Sophomore Year		
	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Agricultural Economics 222	4		
Animal Husbandry 201; Dairy Husbandry 201; Horticulture 111; or Poultry Husbandry 211		3	3
Crop Science 111			3
Economics 310, 312		5	5
Humanities 201, 202	3	3	
Physical Education	1	1	1
ROTC	2	2	2
Social Science 101, 102, 103	3	3	3
Technical Agriculture (other than Agricultural Economics)			3
Zoology 101	4		
	<hr/> 17	<hr/> 17	<hr/> 20

<i>Course and No.</i>	Junior Year		
	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Agricultural Economics 331, 448, 334	3	4	3
Accounting 201, 202, 203	5	5	5
Economics 420			5
English 210		3	
Rural Sociology 311	3		
Electives (Major Area—Option A or B) ..	6		6
Electives		6	
	<hr/> 17	<hr/> 18	<hr/> 19

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Agricultural Economics 532		3	
Business Administration 201, 202, 203	3	3	3
History 310	5		
Political Science 211	5		
Electives (Major Area—Option A or B) ...		3	3
Electives	3	6	6
	<hr/> 16	<hr/> 15	<hr/> 12

Option A—Agricultural Economics
 Agricultural Economics 223, 407,
 441, 445, 449, 451, 508, 510, 542

Option B—Horticulture
 Agricultural Economics 331, 504,
 542

Horticulture 122, 223, 230, 233, 235,
 331, 332, 333, 335, 341, 442, 443,
 445, 556
 Soil Science 223

CURRICULUM IN AGRICULTURAL EDUCATION**Freshman Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 101, 102, 103	5	5	5
Mathematics 111, 112	5	5	—
Physics 111	—	—	5
General Agriculture—			
101, 102, 103	1	1	1
Social Science 101, 102	3	3	—
Botany 101	—	—	4
Physical Education 101, 103, 111 or 131	1	1	1
ROTC 101, 102, 103	1	1	1
	<hr/> 16	<hr/> 16	<hr/> 17

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Chemistry 101, 102, 103	5	5	5
Zoology 101	4	—	—
Horticulture 111	3	—	—
Crop Science 111	—	—	3
Agricultural Engineering 111, 122	—	3	3
Poultry Husbandry 211	—	3	—
Animal Husbandry 222	3	—	—
Dairy Husbandry 201	—	—	3
Agricultural Economics 222	—	—	4
Economics 310	—	5	—
Physical Education—Electives—	1	1	1
ROTC 201, 202, 203	2	2	2
	<hr/> 18	<hr/> 19	<hr/> 21

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Agricultural Education 337	—	3	—
Agricultural Education 300, 303	3	3	—
Agricultural Economics 223	—	4	—
Agricultural Engineering 223	—	3	—
Animal Husbandry 332	—	—	5
Bacteriology 202	4	—	—
Education 201	3	—	—
Horticulture 233	—	—	3
Poultry 212	3	—	—
Psychology 201, 203, 301	3	3	3
Soil Science 223	—	—	4
Zoology 305	—	—	4
*Electives, A, B, C, or D	3	3	—
	19	19	19

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Agricultural Education 441, 442, 443	5	5	5
Agricultural Education 401, 402	3	3	—
Agricultural Engineering 444	—	3	—
Botany 301	—	—	3
English 210	3	—	—
Guidance 501	3	—	—
Horticulture 235	—	—	3
Rural Sociology 311	—	—	3
*Electives A, B, C, or D	3	—	3
	17	11	17

* A

*Agricultural Economics and
Rural Sociology*

Agricultural Economics	331
" "	441
" "	447
" "	451
" "	504
Rural Sociology	501
" "	502
" "	504

* B

Agricultural Engineering

Agricultural Engineering	224
" "	332
" "	332
" "	441
" "	442

* C

Animal Science

Animal Husbandry	224
" "	336
" "	433
" "	344
" "	442
Dairy Husbandry	222
" "	223
" "	246
Poultry Husbandry	221
" "	441
" "	442
" "	443

* D

Plant Science

Crop Science	224
" "	341
" "	501
Soil Science	332
" "	333
Earth Science	211
Horticulture	112
" "	122
" "	223
" "	230
" "	335

* Students wishing to concentrate in a particular area of agriculture may do so by taking electives in one of the following areas:

CURRICULUM IN AGRICULTURAL SCIENCE

Option A: Plant or Soil Science

Option B: Agricultural Engineering

Freshman Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Chemistry 101, 102, 103	5	5	5
English 101, 102, 103	5	5	5
General Agriculture 101, 102, 103	1	1	1
Mathematics 111, 112, 113	5	5	5
Physical Education	1	1	1
ROTC	1	1	1
	<hr/> 18	<hr/> 18	<hr/> 18

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Botany 101			4
Chemistry 221, 222	5	5	
English 210			3
Humanities 201, 202	3	3	
Physical Education	1	1	1
ROTC	2	2	2
Social Science 101, 102, 103	3	3	3
Zoology 101			4
Electives (Major Area—Option A or B) ..	3	3	6
	<hr/> 17	<hr/> 17	<hr/> 17

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Bacteriology 202	4		
Earth Science 211, 212	3		3
Economics 310	5		
Mathematics 218		5	
Zoology 303			3
Boology 404 or Botany 202			4
Electives (Major Area—Option A or B) ..	6	6	6
Electives		6	
	<hr/> 18	<hr/> 17	<hr/> 16

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Physics 201, 202	5	5	
Electives (Chemistry, Physics, or Mathematics)			5
Electives (Major Area—Option A or B) ...	4		4
Electives (Bacteriology, Botany or Zoology)	4	4	
Electives		6	6
	<hr/> 13	<hr/> 15	<hr/> 15

Option A—Plant or Soil Science

Crop Science 111, 224, 501, 502, 505
 Bacteriology 303
 Botany 201, 301
 Chemistry 251 or 551, 331, 332, 441, 442
 Mathematics 221, 222, 223
 Physics 203
 Zoology 304, 503, 504

Option B—Agricultural Engineering

Agricultural Engineering 111, 223, 224, 331, 332, 441, 442, 500, 502, 503 (20 hours required)
 Architectural Engineering 451, 452
 Electrical Engineering 421, 422, 423
 Mathematics 221, 222, 223, 231 (10 hours required)
 Mechanical Engineering 102, 103, 200, 205, 210, 220, 301, 302, 311, 312, 313, 411
 Physics 203
 Soil Science 223

CURRICULUM IN AGRICULTURAL TECHNOLOGY

Option A: Animal Industries

Option B: Dairy Manufacturing

<i>Course and No.</i>	Freshman Year		
	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Biological Science 101	—	—	5
Crop Science 111	—	—	3
English 101, 102, 103	5	5	5
General Agriculture 101, 102, 103	1	1	1
Mathematics 111, 112	5	5	—
Physical Education	1	1	1
Physical Science 101, 102	5	5	—
ROTC	1	1	1
	18	18	16

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Agricultural Economics 222	4	—	—
Agricultural Engineering 122	—	3	—
Botany 101, Animal Husbandry 201	4	3	—
English 210	—	—	3
Horticulture 111	—	—	3
Humanities 201, 202, 203	3	3	3
Physical Education	1	1	1
Poultry Husbandry 211	3	—	—
ROTC	2	2	2
Social Science 101, 102; Economics 310	3	3	3
Zoology 101; Social Science 223	—	4	4
	20	19	21

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Bacteriology 202	—	—	4
Dairy Husbandry 201; Zoology 304	3	—	3
Physics 111, 112	5	5	—
Rural Sociology 331	—	—	3
Electives (Bacteriology, Botany or Zoology) ..	5	—	—
Electives (Major Area—Option A or B) ..	4	10	6
Electives	—	3	—
	17	18	16

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Electives (Major Area—Option A or B) ...	9	9	6
Electives	6	6	5
	15	15	11

Option A—Animal Industry

Animal Husbandry 222, 224, 331,
332, 334, 344, 442, 502
Chemistry 251
Dairy Husbandry 447, 334
Poultry Husbandry 212, 222, 504
Zoology 303, 302

Option B—Dairy Manufacturing

Bacteriology 302
Chemistry 251
Agricultural Engineering 440
Dairy Husbandry 222, 223, 246,
330, 343, 344, 501, 441, 334

GENERAL COURSES FOR AGRICULTURE MAJORS**GENERAL AGRICULTURE****Undergraduate****101. General Agriculture.** Credit 1(1-0)

A student of the broad base of modern agriculture with emphasis on current trends and opportunities in agriculture.

102. General Agriculture. Credit 1(1-0)

A continuation of General Agriculture 101 with special emphasis on the development of agriculture as a modern technology and the impact of science on its development.

103. General Agriculture. Credit 1(1-0)

A continuation of General Agriculture 102. A study of the agricultural economy and certain inter-relationships with the non-agricultural industries and business.

211. Supervised Job Experience. Credit 9(0-45)

Designed to provide students pursuing the two-year terminal curricula with an apprenticeship experience in the special vocation they plan to enter. Each student required to spend a minimum of twelve weeks working full time in an approved job situation.

212. Supervised Job Experience. Credit 3(1-4)

Registration concurrently with General Agriculture 211; assigned reading; record of observations and personal experiences; personal evaluation of own work, and reports.

DEPARTMENT OF AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

HOWARD F. ROBINSON, *Chairman*

The Department of Agricultural Economics and Rural Sociology offers courses in farm management, marketing, land economics, agricultural statistics, agricultural prices, financing and credit arrangements, agricultural legislation, and rural sociology.

Courses are designed to develop techniques for analyzing technical and social problems of agriculture to help prepare students for farming careers, and to lay a groundwork for those who wish to do graduate study.

The Department assumes major responsibility for guidance and counselling of students who major in Agricultural Business.

Employment opportunities:

Federal and State governments employ many agricultural economists for domestic and foreign research and educational work. There is also a good possibility for employment with business organizations as salesmen, purchasing agents and marketing specialists. Opportunities for trained farm managers and farm operators are likely to increase as farming becomes more complex.

COURSES IN AGRICULTURAL ECONOMICS

Undergraduate

222. Introduction to Agricultural Economics. Credit 4(4-0)
(Formerly Ag. Econ. 122.)

An application of the fundamental principles of economics to agricultural production, marketing, land tenure, leasing arrangements, financing and related economic problems.

223. Elements of Farm Management. Credit 4(3-2)
(Formerly Ag. Econ. 123.)

Principles which govern the effective organization and operation of the farm firm.

331. Marketing Agricultural Products. Credit 3(3-0)
(Formerly Ag. Econ. 131.)

Principles and practices of marketing as applied to farm commodities. Form, place, time and possession utility, the ultimate consumer's market, the agricultural industries market, the middleman system, exchange market operation and future contracts, price determination, reducing marketing costs and Federal Legislation as it applies to agricultural marketing. Visits will be made to local markets. Prerequisite: Ag. Econ. 222.

334. Agricultural Prices. Credit 3(2-2)
(Formerly Ag. Econ. 505.)

Information regarding agricultural price changes, index numbers, price determination, seasonal and cyclical price movements, storage problems, and other methods of controlling extreme price fluctuations, government price policy.

- 407. Intermediate Economic Theory.** Credit 5(5-0)
Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools.
- 441. Farm Records and Accounts.** Credit 3(2-2)
(Formerly Ag. Econ. 141.)
Methods and practices employed in taking farm inventories, filing income tax returns, receipts and expenditures, preparing financial statements. Single enterprise accounts and the use of farm accounts as a method of indicating the efficiency of farm operations. Prerequisite: Ag. Econ. 222.
- 445. Land Economics.** Credit 3(3-0)
(Formerly Ag. Econ. 145.)
Isolates land as a factor of production, historical implications of land policies in the United States, land classification, land utilization, rights in land and the extent of public land ownership. Prerequisite: Ag. Econ. 222.
- 446. Land Income.** Credit 2(2-0)
(Formerly Ag. Econ. 146.)
Historic and present theories of rent, the role of the landlord, principles of land evaluation, appraisal and taxation. Prerequisites: Ag. Econ. 222, 445.
- 447. Cooperative Marketing.** Credit 3(3-0)
(Formerly Ag. Econ. 147.)
Early cooperative movements, principles of cooperatives, importance of cooperatives in the United States, problems of organization, management and operation of cooperative endeavors by farmers in buying and selling. Prerequisites: Ag. Econ. 222, 331.
- 448. Agricultural Legislation.** Credit 3(3-0)
(Formerly Ag. Econ. 148.)
The relationship between agriculture and government since the Northwest Ordinance of 1787 to the present; how this relationship has affected the farm business, price supports and other policy which has an impact upon agriculture. Prerequisite: Ag. Econ. 222.
- 449. Marketing Dairy Products.** Credit 3(2-2)
(Formerly Ag. Econ. 149.)
Economic problems in procuring milk and cream, in processing and distributing fluid milk, cream and manufactured dairy products; marketing legislation, market news, market methods, including cooperation, consumer demand and price policy. Prerequisite: Ag. Econ. 331.
- 451. Economics of Food Distribution.** Credit 3(3-0)
Description of market structures and operations in the processing, wholesale and retail distribution of food. The effect of industrial organization and government regulations on the efficiency of the market and consumers demand for food.

Advanced Undergraduate and Graduate

- 551. Southern Resources in a Changing Economy—A Seminar.** Credit 3(3-0)
Trends and the formulation of economic and social problems in the South, and particularly in North Carolina; labor and capital mobility, agriculture as compared with industry, the problem of underemployment, and important phases of current economic development. Prerequisites: Economics 310, Sociology 231 or Ag. Econ. 222.
- 502. Agricultural Policy.** Credit 3(3-0)
The place of agriculture in a national and international economy; the impact of public policy on agriculture, an analysis of policy as it relates to the price support program, farm credit, international trade, aid to low income farmers, and resources development.

503. Farm Cost Accounts.

Credit 3(2-2)

A study of records needed to determine the relative profitability of various agricultural enterprises, setting up and keeping running accounts of the farm business, interpretation and use of accounts in farm management.

504. Commodity Marketing Problems.

Credit 3(3-0)

Economic problems arising out of the demand, supply and distribution of specific agricultural commodities; the price making mechanism, marketing methods, grades, values, price, cost, and governmental policy. Not more than two commodities will be studied in any one quarter. Selection of commodities and emphasis on problem areas will be made on the basis of current need; commodities studied will be cotton, tobacco, fruits and vegetables, and grains. Prerequisite: Ag. Econ. 331.

506. Seminar in Marketing Farm Products.

Credit 2(2-0)

Discussion, reports, consultation and research efforts which throw light on marketing problems of low income farmers in North Carolina, including National and International importance of locally grown products such as tobacco and cotton.

508. Special Problems in Agricultural Economics.

Credit 3(3-0)

Designed for students who desire to work out special problems in the field of agricultural economics; problem definition and formulation; developing thesis proposals.

509. Advanced Farm Management.

Credit 3(2-2)

Methods of research, plans, organization, and the application of principles as they relate to farm management. Part of the students' time will be spent on the college farm.

510. Seminar in Agricultural Economics.

Credit 2(2-0)

Discussion reports and an appraisal of current literature on agricultural problems. Consent of instructor.

511. Agricultural Economics Research.

Credit 3(3-0)

Review of different types of research methodology used in the field of Agricultural Economics.

532. Agricultural and Social Statistics.

Credit 4(3-2)

(Formerly Ag. Econ. 132a.)

Making use of census data, statistical methods, calculating machines used extensively. Prerequisites: Ag. Econ. 222, Econ. 310, or Soc. 231.

533. Agricultural and Social Statistics.

Credit 4(3-2)

(Formerly Ag. Econ. 132b.)

This course is a continuation of Ag. Econ. 532.

542. Financing Agriculture.

Credit 3(3-0)

(Formerly Ag. Econ. 142.)

Risks and uncertainty as applied to agriculture, the role of agricultural credit in a money economy, classification of credit, principles underlying the economic use of farm credit, primary lending agencies in North Carolina, and the growth of Federal Lending agencies in the farm credit field. Prerequisite: Ag. Econ. 222.

COURSES IN RURAL SOCIOLOGY**Undergraduate****311. Principles of Rural Sociology.**

Credit 3(3-0)

Social systems, cultural patterns and institutional arrangements of people in rural environments in relation to those of towns and cities.

Advanced Undergraduate and Graduate

- 501. Rural Social Problems.** Credit 3(3-0)
Population, education, religion, health, land tenure, parity income, farm labor and mechanization, and housing.
- 502. Rural Leadership.** Credit 3(3-0)
Opportunities and needs for rural leadership; educational and psychological requirements for various types of rural leaders.
- 503. The Rural Family.** Credit 3(3-0)
The institutional nature of the rural family, etc., role in the community including its relations to educational, religious, welfare and other community organizations.
- 505. Rural Standards of Living.** Credit 3(3-0)
Consumption behavior in the main community groups of our society.
- 506. Special Problem in Rural Sociology.** Credit 2 to 4 hours
Work on a problem in rural sociology under the guidance of a member of the faculty.

DEPARTMENT OF AGRICULTURAL EDUCATION

C. E. DEAN, *Chairman*

The Department of Agricultural Education offers professional courses to prepare persons for teaching vocational agriculture and related fields. The program has been designed to meet the certification requirements of vocational agriculture teachers in North Carolina. The Department offers courses leading to the Master of Science Degree in the field of Agricultural Education.

COURSES IN AGRICULTURAL EDUCATION**Undergraduate**

- 300. Audio-visual Aids in Vocational Agriculture.** Credit 3(2-2)
(Formerly Agricultural Education 500).
Techniques in preparing, using and evaluating audio-visual aids. It also includes the operation and adjustment of such equipment as projectors, recorders, film strip machines, and other units found in departments of vocational agriculture.
- 303. Youth Organizations in Secondary Schools** Credit 3(3-0)
(Formerly Agricultural Education 503).
The practices and procedures of setting up local, district and state organizations. Emphasis will be placed on training officers and members.
- 337. Secondary Education in Agriculture.** Credit 3(3-0)
(Formerly Agricultural Education 137).
The course is designed to acquaint the student with the historical objectives of vocational agriculture, the problems in the area of secondary education and some solutions.

401. Materials and Methods of Teaching Out-of-School Groups.

Credit 3(3-0)

(Formerly Agricultural Education 501a.)

Methods and materials used in teaching young farmers and adult groups. Course includes developing various teaching devices and aids for instructing out-of-school groups.

402. Teaching Out-of-School Groups.

Credit 3(3-0)

(Formerly Agricultural Education 501b.)

Organizing, planning and teaching out-of-school groups, including working with community committees and organizations and evaluating the outcome with such groups. Prerequisites: Agricultural Education 401 and 441.

441. Materials and Methods of Teaching Vocational Agriculture.

Credit 5(5-0)

(Formerly Agricultural Education 141.)

Principles of teaching as applied to vocational agriculture; preparing lesson plans, and organizing teaching aids to meet community needs. Prerequisites: Education 202, 301, Guidance 501, Psychology 203, 301.

442. Observation and Directed Practice Teaching.

Credit 5(5-0)

(Formerly Agricultural Education 142.)

Students will be required to spend eight weeks in an approved training center doing observation and directed practice teaching. Prerequisite: Agricultural Education 441.

443. Problems in Teaching Vocational Agriculture.

Credit 5(5-0)

(Formerly Agricultural Education 143.)

The discovery and analysis of problems in the field, program building, and evaluation of instruction in vocational agriculture. Prerequisite: Agricultural Education 442.

Advanced Undergraduate and Graduate**502. Adult Education in Vocational Agriculture.**

Credit 3(3-0)

Principles and problems of setting up and directing adults with emphasis on conducting organizing instruction.

503. Adult Education in Agricultural Education.

Credit 3(3-0)

The latest techniques and methods of teaching adults in agricultural education.

504. The Principles of Agricultural Education.

Credit 3(3-0)

The principles and practices in agricultural education as revealed by research and new trends.

505. Guidance and Group Instruction in Vocational Agriculture.

Credit 3(3-0)

Guidance and group instruction applied to agricultural occupations and other problems of students in vocational agriculture.

506. Problem Teaching in Vocational Agriculture.

Credit 3(3-0)

Setting up problems for teaching unit courses in vocational agriculture.

507. Public Relations in Vocational Agriculture.

Credit 3(3-0)

The means and methods of promoting and publicizing the local program of vocational agriculture.

Graduate

These courses are open only to graduate students. For descriptions of them see bulletin of the Graduate School.

- | | |
|---|---------------|
| 601. Administration and Supervision. | Credit 3(3-0) |
| 602. Program Planning in Vocational Agriculture. | Credit 3(3-0) |
| 603. History of Vocational Agriculture. | Credit 3(3-0) |
| 605. Public Relations in Agriculture. | Credit 3(3-0) |
| 606. Research in Vocational Agriculture. | Credit 3(3-0) |
| 607. Philosophy of Vocational Education. | Credit 3(3-0) |
| 608. Seminar in Agricultural Education. | Credit 3(3-0) |
| 609. Methods and Techniques of Supervisors of Agricultural Education. | Credit 3(3-0) |
| 610. Recent Developments and Trends in Agricultural Education. | Credit 3(3-0) |
| (Formerly Agricultural Education 610a.) | |
| 611. Recent Developments and Trends in Agricultural Education. | Credit 3(3-0) |
| 612. Community Problems in Agriculture. | Credit 3(3-0) |
| (Formerly Agricultural Education 604a.) | |

DEPARTMENT OF ANIMAL INDUSTRY

W. L. KENNEDY, *Chairman*

The Department of Animal Industry offers courses designed to meet the diverse interests of students by offering a choice of several options of study in which the students may specialize. Students wishing a major in Agricultural Sciences or Agricultural Technology may concentrate in either of the following fields of specialty: Animal Husbandry, Dairy Husbandry, Dairy Manufacturing, or Poultry Husbandry.

The specialized options of the students are particularly well suited to equip them as owners and managers of general farms where livestock is handled, for specialized types of dairy and poultry farming, and as instructors and investigators in Animal Industry.

A two-year course in Animal Industry is offered for those students who desire a terminal program.

COURSES IN ANIMAL HUSBANDRY**Undergraduate**

- | | |
|--|---------------|
| 201. Breeds of Livestock. | Credit 3(3-2) |
| (Formerly A. H. 111.) | |
| Breeds of farm animals with reference to their origin and development. | |
| 222. Types and Market Classes of Livestock. | Credit 3(3-2) |
| (Formerly A. H. 122.) | |

The economic importance, classification and grading of cattle, sheep, swine, horses, and livestock products.

224. **Swine Production.** Credit 3(3-2)
(Formerly A. H. 124.)

The place of swine in the farm program; their selection, breeding, care and management.

331. **Physiology of Domestic Animals.** Credit 4(2-4)
(Formerly A. H. 131.)

Designed to acquaint students with structure and function of tissues, organs and systems of animals.

332. **Livestock Feeding.** Credit 5(5-0)
(Formerly A. H. 132.)

Principles of feeding and the composition of feeds.

334. **Animal Breeding.** Credit 3(2-2)
(Formerly A. H. 134.)

A study of the principles of genetics as applied to the improvement of farm animals, and some of the methods and problems of the breeder.

336. **Sheep Production.** Credit 3(3-0)
(Formerly A. H. 136.)

The place of sheep in the farm program; their selection, breeding, care, and management.

337. **Livestock Marketing.** Credit 3(2-2)
(Formerly A. H. 137.)

A study of the development of livestock markets, methods of marketing and seasonal trends will be considered. Field trips will be made to local livestock markets and slaughtering plants.

344. **Livestock Judging.** Credit 3(1-4)
(Formerly A. H. 144.)

Special training in points of selection of farm animals.

433. **Diseases of Farm Animals.** Credit 3(2-2)
(Formerly A. H. 133.)

The common diseases of livestock with reference to causes, prevention, and treatment.

435. **Beef Production.** Credit 3(2-2)
(Formerly A. H. 135.)

Breeds of beef cattle, their selection, care, and management.

442. **Farm Meats.** Credit 4(2-4)
(Formerly A. H. 142.)

Meat production from a market standpoint with laboratory work in the slaughtering, curing, and marketing of meat products. Special training in points of selection of farm animals.

Advanced Undergraduate and Graduate

501. **Animal Nutrition.** Credit 5(5-0)

Metabolism of carbohydrates, fats, proteins and minerals; net energy values and application to new theories of feeding.

502. **Seminar.** Credit 1(1-0)

A review of current literature related to Animal Husbandry.

503. **Seminar.** Credit 1(1-0)

A continuation of Animal Husbandry 502.

504. **Special Problems.** Credit 3(3-0)
(Formerly A. H. 503.)

Special assignments in the advanced phases of any of the lines of animal production and meats. Students will elect work in desired subjects after conference with the instructor in charge. Prerequisite: Three courses in Animal Husbandry.

513. **Advanced Livestock Management.** Credit 3(3-0)

Special work in problems dealing with feeding, breeding, and management in the production of beef cattle.

514. **Advanced Livestock Management.** Credit 3(3-0)

A continuation of Animal Husbandry 513 with emphasis on sheep.

515. **Advanced Livestock Management.** Credit 3(3-0)

A continuation of Animal Husbandry 514 with emphasis on swine.

Graduate

These courses are open only to graduate students. For descriptions of them see bulletin of the Graduate School.

607. **Meat Selection.** Credit 3(3-0)

(For Home Economics Teachers and Home Demonstration Agents.)

618. **Meat Production.** Credit 3(3-0)

619. **Advanced Livestock Marketing.** Credit 3(3-0)

620. **Sheep Production and Management.** Credit 3(3-0)

COURSES IN DAIRY HUSBANDRY

Undergraduate

201. **Principles of Dairying.** Credit 3(2-2)
(Formerly D. H. 111.)

The fundamental principles of dairying; type in dairy cattle; the composition of milk, its chemical and physical properties; sampling and testing of milk; selection and herd management.

222. **Dairy Technology.** Credit 3(2-2)
(Formerly D. H. 122.)

The composition of milk and milk products; study of the Babcock test for fat in milk and cream and use of modified Babcock test for fat in other dairy products. Prerequisite: Dairying 201.

223. **Dairy and Food Plant Sanitation.** Credit 3(2-2)
(Formerly D. H. 123.)

Principles and procedures, sanitary standards and regulations for milk and food products; equipment cleaning and detergents used for an effective job.

246. **Dairy Plant Practice.** Credit 3(0-6)
(Formerly D. H. 146.)

Assigned practice work at the college dairy and the milk and ice cream laboratories of the college dairy plant; given for both dairy manufacturing and dairy husbandry majors. Prerequisite: Three dairy subjects.

330. Dairy Plant Management. Credit 3(2-2)
(Formerly D. H. 130.)

The organization and management of a dairy plant; procurement of raw supplies; plant layout, equipment for plants, distribution of products, costs and operation, and record keeping.

334. Dairy Cattle and Milk Production. Credit 3(2-2)
(Formerly D. H. 134.)

Breeds of dairy cattle, their development, care, and management.

340. Dairy Products Judging. Credit 2(0-4)
(Formerly D. H. 140.)

Standards and grades of dairy products; practice in judging milk, cream, butter, and ice cream.

342. Market Milk. Credit 3(2-2)
(Formerly D. H. 142.)

The Market Milk industry, milk ordinances, city milk supply, transportation, grading, pasteurizing, bottling, and distribution. Prerequisite: Dairying 201, 222.

343. Advanced Dairy Technology. Credit 4(2-4)
(Formerly D. H. 143.)

Theory of and practice in analytical methods used for control in dairy manufacturing plant. Prerequisite: Dairying 342.

344. Ice Cream Making. Credit 3(1-4)
(Formerly D. H. 144.)

The principles involved in the manufacturing of commercial ice cream and ices.

441. Dairy Management. Credit 3(1-4)
(Formerly D. H. 141.)

Designs and construction of dairy buildings; problems of economical milk production; fitting and showing dairy cattle.

447. Dairy Breeds and Pedigrees. Credit 3(2-2)
(Formerly D. H. 147.)

A study of dairy pedigrees and breed families; official testing and dairy herd improvement, and association method.

448. Dairy Cattle Judging. Credit 3(2-2)
(Formerly D. H. 148.)

Characteristics of the dairy breeds and score-card requirements; relation of type, form and function to the value of selection. Practice judging.

Advanced Undergraduate and Graduate

501. Dairy Seminar. Credit 1(1-0)

Assignment of papers on subjects relating to the dairy industry and methods in preparing and presenting such papers.

502. Dairy Seminar. Credit 1(1-0)

Continuation of D. H. 501.

504. Special Problems. Credit 3(3-0)

Assignment of work along special lines in which a student may be interested, given largely by the project method for individuals either in Dairy Manufacturing or Dairy Husbandry. Prerequisite: Three dairy subjects.

Graduate

This course is open only to graduate students. For description of it, see bulletin of the Graduate School.

610. **Advanced Dairy Farm Management.** Credit 3(3-0)

COURSES IN POULTRY HUSBANDRY**Undergraduate**

211. **Poultry Husbandry.** Credit 3(2-2)
(Formerly P. H. 111.)

The industry; origin and classification of breeds, selection, improvement and management of laying and breeding flocks.

212. **Poultry Husbandry.** Credit 3(2-2)
(Formerly P. H. 112.)

Incubation; brooding, housing, feeding, and management of young growing stock.

221. **Poultry Plant Practice.** Credit 9(0-18)
(Formerly P. H. 121.)

A laboratory course designed to develop and improve practical skills in poultry management and production.

222. **Incubation and Hatchery Management.** Credit 3(2-2)
(Formerly P. H. 122.)

A study of the operation incubators and managements of commercial hatcheries including sanitation, egg sources, hatchability, records and the National Poultry Improvement Plan. Prerequisite: Zoology 402.

223. **Turkey Management.** Credit 3(2-2)
(Formerly P. H. 123.)

History, origin, development and management of the turkey flock. Prerequisite: Poultry Husbandry 212.

331. **Poultry Judging.** Credit 3(2-2)
(Formerly P. H. 131.)

Standard and utility judging of fowls, selection and preparation for shows and organization and supervision of poultry shows, judging and laying contests. Prerequisite: Poultry Husbandry 212.

332. **Poultry Nutrition and Feeding.** Credit 4(3-2)
(Formerly P. H. 132.)

Nutritive requirements and metabolism of poultry; feed ingredients, compounding rations and feeding standards for breeding, fattening, growing and producing stock.

334. **Poultry Anatomy-Physiology.** Credit 3(2-2)
(Formerly P. H. 134.)

A course which deals with the structure and function of tissues, organs and systems of the domestic fowl. Prerequisite: Poultry Husbandry 212.

441. **Poultry Diseases and Parasites.** Credit 3(2-2)
(Formerly P. H. 141.)

Poultry hygiene; causes of diseases; symptoms and control of diseases and parasites. Prerequisite: Poultry Husbandry 334.

442. **Poultry Farm Management.** Credit 3(3-0)
(Formerly P. H. 142.)

Principles of farm management as applied to poultry production; records and factors influencing economic returns. Prerequisite: Poultry Husbandry 212.

443. **Processing and Marketing Poultry Products.** Credit 3(2-2)
(Formerly P. H. 143.)

Methods of killing, dressing, grading and storage of poultry meats and the grading and storage of eggs; transportation poultry products and factors influencing price. Prerequisite: Poultry Husbandry 212.

444. **Poultry Breeding.** Credit 3(2-2)
(Formerly P. H. 144.)

Inheritance of certain significant morphological and physiological characters in the fowl; systems of mating, breeding patterns, trap nesting, pedigrees and artificial insemination. Prerequisite: Zoology 303.

Advanced Undergraduate and Graduate

501. **Poultry Seminar.** Credit 1(1-0)

Special articles and reports on subjects relating to the poultry industry will be assigned each student with round table discussion.

502. **Poultry Nutrition.** Credit 3(2-2)

Techniques for determining the nutritive requirement of poultry and the biological analysis of feedstuffs for poultry.

503. **Marketing Poultry Products.** Credit 3(2-2)

Function of marketing agencies and relation to marketing costs. Types and location of markets with respect to production. Function of storage, market reporting, and marketing controls.

504. **Poultry Plant Management.** Credit 3(2-2)

Consideration involved in establishing a poultry enterprise. Economics and management factors involved in the operation of specialized poultry breeding, egg, and meat farms.

Graduate

This course is open only to graduate students for description of it see the bulletin of the Graduate School.

601. **Poultry Research.** Credit 3 to 5(0-6-10)

DEPARTMENT OF PLANT SCIENCE AND TECHNOLOGY

SAMUEL J. DUNN, *Chairman*

The programs in this department are designed to give the students broad scientific and technical training which will enable them to take advantage of the many job opportunities available in these fields. There is considerable flexibility in the various programs to allow for a choice of electives which may better serve the individual needs of the students.

COURSES IN AGRICULTURAL ENGINEERING**Undergraduate**

- 111. Agricultural Drawing.** Credit 3(0-6)
 Lettering, use of instruments, multi-view projection drawing, auxiliary projection, selection views and dimensioning.
- 122. Farm Shop.** Credit 3(1-4)
 Selection, sharpening, care and correct use of shop tools and equipment; woodwork and simple carpentry; sheet metal work; elementary forge work; electric arc and oxyacetylene welding; pipe fitting and simple plumbing repairs.
- 223. Field Machinery.** Credit 3(1-4)
 (Formerly Ag. Engr. 123.)
 Principles, operation, adjustment, and maintenance of farm field machinery.
- 224. Farm Buildings.** Credit 3(0-6)
 (Formerly Ag. Engr. 124.)
 Fundamentals of building construction, applied to location, selection of materials, foundations and planning. Prerequisite: Ag. Engr. 111.
- 331. Surveying and Drainage.** Credit 3(1-4)
 (Formerly Ag. Engr. 131.)
 Principles of surveying and drainage, planning of soil erosion and drainage systems, based on topographical and soil requirements. Prerequisites: Soil Science 223, Math. 111, 112.
- 332. Farm Power.** Credit 3(1-4)
 (Formerly Ag. Engr. 132.)
 Principles of mechanical power, use, care and adjustment of internal combustion engines. Prerequisite: Physics 111.
- 440. Dairy Engineering.** Credit 3(2-3)
 (Formerly Ag. Engr. 140.)
 The general engineering principles of power selection, installation and maintenance, refrigeration and heat transfer as they apply to equipment used in the dairy industry. Also plant arrangement and management.
- 441. Rural Electrification.** Credit 3(1-4)
 (Formerly Ag. Engr. 141.)
 A study of electricity, electrical wiring, and electrical devices, including motors, with particular emphasis upon the relation of these to the home and farm. Prerequisites: Physics 111, 112.
- 442. Water Supply and Sanitation for the Farm and Home.** Credit 3(2-2)
 (Formerly Ag. Engr. 142.)
 The planning and installation of farm water and sanitation systems. Prerequisites: Ag. Engr. 122, Bact. 202.
- 441. Farm Shop Organization and Management.** Credit 3(3-0)
 (Formerly Ag. Engr. 501.)
 A course designed for prospective and in-service teachers of vocational agriculture; includes presentation of purpose, plans, and equipment of shops, organization of course of study, and methods of teaching. Prerequisite: Ag. Engr. 122, Ag. Ed. 443.

Advanced Undergraduate and Graduate

- 500. Conservation, Drainage, and Irrigation.** Credit 3(1-4)
 Improvement of soil by use of the study of conservation practices, engineering structures, drainage and irrigation systems. Prerequisite: Ag. Engr. 331.

502. Advanced Farm Shop.

Credit 3(0-6)

Care, operation, and maintenance of farm shop power equipment. Prerequisite: Ag. Engr. 122.

503. Special Problems in Agricultural Engineering.

Credit 3(3-0)

Special work in agricultural engineering on problems of special interest to the student. Open to seniors in Agricultural Engineering.

COURSES IN CROP, SOIL, AND EARTH SCIENCE CROP SCIENCE

Undergraduate

111. General Field Crops.

Credit 3(2-2)

(Formerly Agron. 111.)

History, classification, distribution, culture and utilization of the important field crops. Emphasis is placed on factors affecting crop yield and principles of production.

224. Forage Crops.

Credit 3(2-2)

(Formerly Agron. 124.)

Grasses, legumes and other plants and their uses as hay, pasture, silage and special purpose forage, identification of plants and seeds and study of quality in hay, silage and pasture population. Prerequisite: Cp. Sc. 111.

***341. Determining Crop Quality.**

Credit 4(2-4)

(Formerly Agron. 141.)

The recognition of high quality crop products as influenced by growth and maturity factors, weeds and diseases, determination of commercial quality through study of use and grades; identification of crops, planning crop exhibits. Prerequisite: Cp. Sc. 111.

Advanced Undergraduate and Graduate

****500. Plant Chemicals.**

Credit 3(2-2)

A study of the important chemical pesticides and growth regulators used in the production of economic plants. Prerequisite: Chem. 102.

***501. Crop Ecology.**

Credit 3(3-0)

(Formerly Agron. 501.)

The physical environment and its influence on crops; geographical distribution of crops.

****502. Breeding of Crop Plants.**

Credit 3(2-2)

(Formerly Agron. 502.)

Significance of crop improvements in the maintenance of crop yields; application of genetic principles and techniques used in the improvement of crops; the place of seed certification in the maintenance of varietal purity and production of quality seed. Prerequisite: Zoology 303 or consent of instructor.

503. Special Problems in Crops.

Credit 3 to 5 hours

(Formerly Agron. 503.)

Designed for students who desire to study special problems in crops. By consent of instructor.

505. Research Design and Analysis.

Credit 3(2-2)

Experimental designs, methods and techniques of experimentation; application of experimental design to plant and animal research; interpretation of experimental data. Prerequisite: Ag. Econ. 532 or Math. 218.

* Courses to be taught during odd numbered years.

** Courses to be taught during even numbered years.

Graduate

634. **Grass-Land Ecology.** Credit 3(3-0)

The use of grasses and legumes in a dynamic approach to the theory and practice of grass-land agriculture, dealing with the fundamental ecological principles and their application to management practices.

SOIL SCIENCE**Undergraduate**

223. **Basic Soils.** Credit 4(3-2)
(Formerly Agron. 123.)

The fundamental nature and properties of soils and introductory treatment of soil genesis, morphology, and classification.

332. **Soil Fertility.** Credit 3(3-0)
(Formerly Agron. 132.)

General principles of fertility; the physical, chemical, and biological factors affecting soil fertility and crop production. Prerequisite: Soil Science 223; Chem. 101 or consent of instructor.

333. **Soil Fertility Laboratory.** Credit 2(0-4)

Analytical and diagnostic procedures in studying soil fertility problems. Prerequisite: Chemistry 103; Soil Science 223 and 332 or consent of instructor.

- *442. **Soil Genesis and Classification.** Credit 4(2-2)
(Formerly Agron. 142.)

Soil genesis, morphology and classification of the major soil groups of the United States; techniques of making and using soil surveys. Prerequisites: Soil Science 223 and 332.

Advanced Undergraduate and Graduate

504. **Special Problems in Soils.** Credit 3 to 5 hours
(Formerly Agron. 504.)

Research problems in soils for advanced students. By consent of instructor.

Graduate

For description, see bulletin of the Graduate School.

631. **Soils of North Carolina.** Credit 3(3-0)

EARTH SCIENCE**Undergraduate**

211. **Elements of Physical Geology.** Credit 3(2-2)
(Formerly Geol. 111.)

Relation of geologic principles in the development of a balanced concept of the earth and earth history; identification of rocks and minerals; weathering, water and mineral resources; sediments, metamorphosis and volcanism; land forms. Prerequisites: Chem: 101 or consent of instructor.

212. **Elements of Weather and Climate.** Credit 3(2-2)

A study of the fundamental elements of weather. Physical principles involved in weather conditions as revealed in world patterns of climatic types. Processes and techniques used in gathering and interpretations of meteorological data.

343. Aerial Photointerpretation.

Credit 3(2-2)

The interpretation of aerial photography as an aid to the study of terrains of all types. This course surveys the types of land forms and make applications to problems in engineering, military science and in the planning for agricultural, urban and regional developmental projects. Prerequisites: Earth Sci. 211, Soil Sci. 223 or consent of instructor.

Advanced Undergraduate and Graduate**501. Principles of Astronomy for Elementary and Secondary School Teachers.**

Credit 3(3-0)

The earth as an astronomical body, relationship between earth and sky, the nature of the sun and stars, and the tools and methods of the astronomer. Lectures will be supplemented by night observations.

540. Soil Conservation.

Credit 3(3-0)

Forces of nature and their interaction on soil formation, its distribution and deterioration. The role of physical properties on conservation measures will be considered. Prerequisite: Ea. Sci. 211, Soil Sci. 223 or consent of instructor.

Graduate**601. The Earth in the Physical Universe.**

Credit 3(3-0)

This course is designed to give the student a broad general background in the earth's physical environment, its lithosphere, hydrosphere and atmosphere and their interaction on weather and climate. The physical nature of the stars, the sun and planets will also be studied in the light of modern concepts of space.

(602. Physical Geology.

Credit 3(3-0)

The development of the earth's surface, its material composition and forces acting upon its surface will be considered. Specific topics include origin of mountains and volcanos, causes of earthquakes, work of rivers, wind, waves, and glaciers. Prerequisite: Ea. Sci. 211, 501 or consent of instructor.

604. Conservation of Natural Resources.

Credit 3(3-0)

A descriptive course dealing with conservation and development of renewable natural resources encompassing soil, water and air, cropland, grassland and forests; livestock, fish, and wildlife; and recreational, aesthetic and scenic values. Attention will be given to protection and development of the nation's renewable natural resources base as an essential part of the national security, defense, and welfare.

COURSES IN HORTICULTURE**Undergraduate****111. General Horticulture.**

Credit 3(2-2)

An introduction to the basic principles underlying the production of fruits, vegetables, flowers, and ornamentals. Prerequisite: Botany 102.

112. Amateur Floriculture.

Credit 3(2-2)

General principles of growing flowers on a small scale in the small greenhouse, home, school, and public buildings; growing flowers outside for landscape effect and cutting.

122. Fruit Production. Credit 3(2-2)

Principles and practices of tree fruit production, with emphasis on planting, soil management, pruning, spraying, pollination, harvesting, and storage. Prerequisite: Hort. 111.

223. Greenhouse Construction and Management. Credit 4(2-4)
(Formerly Hort. 123.)

Location, maintenance, and operation of greenhouses. Emphasis on environmental controls, crop rotation, production problems, and business management. Prerequisite: Hort. 111.

230. Plant Propagation. Credit 3(2-2)
(Formerly Hort. 130.)

Study of the types, construction, and management of propagation structures; fundamental principles of propagation by seed, cuttage, budding, grafting, and layerage. Prerequisite: Hort. 111.

233. Vegetable Production. Credit 3(2-2)
(Formerly Hort. 133.)

Commercial vegetable production with special emphasis on large scale production, harvesting, and marketing of vegetables. Prerequisite: Hort. 111 or consent of advisor.

235. Principles of Landscape Planning. Credit 3(2-2)
(Formerly Hort. 135.)

The fundamentals of design in planning the arrangement of small properties, such as the home, school grounds, small parks, and play grounds.

331. Commercial Flower Production. Credit 3(2-2)
(Formerly Hort. 131a.)

Culture of floriculture crops in the greenhouse and out-of-doors including cutflowers, pot plants, conservatory plants, and bedding plants. Special emphasis on seasonal operations. Prerequisite: Hort. 230.

332. Commercial Flower Production. Credit 3(2-2)
(Formerly Hort. 131b.)

Continuation of Hort. 331. Emphasis on seasonal operation and production of crops especially for the winter and early spring seasons.

333. Commercial Flower Production. Credit 5(3-4)
(Formerly Hort. 131c.)

Continuation of Hort. 332. Emphasis on the production of seasonal floricultural crops. Supervised on-the-job training with emphasis on marketing and record keeping.

335. Plant Materials and Landscape Maintenance. Credit 3(2-2)
(Formerly Hort. 136a.)

Identification, merits, adaptability, and maintenance of deciduous shrubs, trees, and vines used in landscape planting; seasonal operations, such as lawns building, planting trees, shrubs, bulbs, and perennials. Prerequisite: Hort. 230 and 235.

341. Nursery Management. Credit 3(2-2)
(Formerly Hort. 141.)

Planning, operations, and methods used by wholesale, retail, and landscape nurseries. Emphasis on cultural practices, records, and selling techniques. Prerequisite: Hort. 230.

442. Basic Floral Design. Credit 3(1-4)
(Formerly Hort. 143a.)

Essentials of flower arrangement and plant decorations for the home, office, hospital, school and church.

443. **Flower Shop Management.** Credit 3(2-2)
(Formerly Hort. 142.)

Designing, planning, handling of merchandise, buying and selling methods, and general policies.

445. **Landscape Design and Construction.** Credit 3(0-6)
(Formerly Hort. 144a.)

Problems in design of land areas with emphasis on orientation, arrangement, and circulation. Instruction in planning, presentation, cost accounting, and construction. Prerequisite: Hort. 235, Ag. Engr. 111.

446. **Landscape Design and Construction.** Credit 3(0-6)
(Formerly Hort. 144b.)

Continuation of 445. Problems in design of larger land areas involving more complex features; practice in landscape model construction.

447. **Landscape Design and Construction.** Credit 3(0-6)
(Formerly Hort. 144c.)

Continuation of 446. Problems involving grading plans, drainage systems, cost estimating, contract specifications, and construction.

Advanced Undergraduate and Graduate

501. **Special Problems.** Credit 2 to 5 hours

Work along special lines given largely by the project method for advanced undergraduate and graduate students who have the necessary preparation.

TWO-YEAR PROGRAMS OF STUDY

The two-year curricula leading to a certificate are offered in the following areas: (1) Animal Husbandry, (2) Dairy Husbandry, (3) Floriculture, (4) Landscape Gardening, (5) Poultry Husbandry, (6) Farm Mechanics, and (7) General Agriculture.

The two-year programs are designed to provide the students with a concentration of training and experience required for successful employment in one of the above areas. Emphasis is placed on technical training and practical experience for competence in a particular vocation rather than preparatory work leading to a degree. A student who wishes to pursue a degree program will receive credit for courses he has completed that are equivalent to those in the degree curricula, if he has met all college entrance requirements.

Courses in the two-year programs of study will be scheduled in accordance with demand. Interested students are advised to contact the department chairman in order to arrange their class schedules.

ANIMAL HUSBANDRY

The two-year curriculum in Animal Husbandry is designed to prepare students for the following positions:

1. Livestock farm operators
 - a. Tenants
 - b. Owners
2. Herdsmen
3. Helpers in meat processing plants
4. Salesmen for feed and livestock supplies

<i>Course and No.</i>	<i>Quarter Hrs.</i>
Agricultural Economics 222, 331, 441	10
Agricultural Engineering 122, 223, 224	9
Animal Husbandry 201, 222, 224, 334, 336, 344, 433, 435, 442	28
Crop Science 224	3
Dairy Husbandry 201	3
English 101, 210	8
General Agriculture 221, 222	12
Mathematics 111	5
Poultry Husbandry 211, 212	6
Social Science 101	3
Air or Military Science	9
Electives	8
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DAIRY HUSBANDRY

The two-year curriculum in Dairy Husbandry is designed to prepare students for the following positions:

1. Dairy farm operators
 - a. Owners
 - b. Renters
 - c. Helpers
2. Herdsmen
3. Salesmen for feed and dairy supplies

<i>Course and No.</i>	<i>Quarter Hrs.</i>
Agricultural Economics 222, 223, 331	7
Agricultural Engineering 111, 122, 224, 332	12
Animal Husbandry 201, 334	6
Crop Science 224	3
Dairy Husbandry 201, 246, 334, 342, 441	15
General Agriculture 101, 102, 103, 211, 212	15
General Horticulture 111	3
English 101, 210	8
Poultry Husbandry 211, 212	6
Social Science 101	3
Air or Military Science	9
Electives	14
	<hr/> 101

FARM MECHANICS

The two-year curriculum in farm mechanics is designed to prepare students for the following positions:

1. Farm shop operators
2. Farm repair services
 - a. Welding
 - b. Electrical wiring
 - c. Plumbing
 - d. Machinery and equipment
3. Assistants in sales and service programs
4. Farm equipment operators

Recommended Courses

<i>Course and No.</i>	<i>Quarter Hrs.</i>
Agricultural Economics 222, 223	8
Agricultural Engineering 111, 122, 223, 224, 332, 441, 441	21
Business Math. 115	5
Botany 102	4
Crop Science 111, 224	6
English 101, 102	10
General Agriculture 101, 102, 103	3
Horticulture 111	3
Mathematics 111, 112	10
Physical Science 101, 102	10
Air and Military Science	9
Electives	17
	<hr/>
	106

FLORICULTURE

The two-year curriculum in Floriculture is designed to prepare students for the following positions:

1. Greenhouse operators
 - a. Owners
 - b. Foremen
 - c. Helpers
2. Floral Designers
3. Helpers in wholesale and retail flower shops
4. Salesmen

Recommended Courses

<i>Course and No.</i>	<i>Quarter Hrs.</i>
Agricultural Engineering 111, 122	6
Botany 102, 202	8
Chemistry 101	5
Crop Science 223	4
English 101, 102, 103	15
General Agriculture 101, 102, 103	3
Horticulture 111, 112, 235, 331, 332, 333, 335, 442	26
Mathematics 111, 112	10
Air or Military Science	9
Electives	15
	<hr/>
	101

GENERAL AGRICULTURE

The two-year curriculum in general agriculture is designed to prepare students for the following positions:

1. General farm operators
2. General farm foremen
3. Skilled helpers

Recommended Courses

<i>Course and No.</i>	<i>Quarter Hrs.</i>
Agricultural Economics 222, 223, 441	11
Agricultural Engineering 122, 223, 224, 331	12
Animal Husbandry 201	3
Crop Science 111, 224, 341	10
Dairy Husbandry 201	3
English 101, 102, 103	15
General Agriculture 101, 102, 103, 211, 212	15
Horticulture 233	4
Mathematics 111, 112	10
Poultry Husbandry 211	3
Social Science 101	3
Soil Science 223, 332, 333	9
Air or Military Science	9
Electives	5
	<hr/>
	112

LANDSCAPE GARDENING

The two-year curriculum in Landscape Gardening is designed to prepare students for the following positions:

1. Landscape Gardener
2. Foreman
3. Estate Maintenance
4. Propagator and Grower

Recommended Courses

<i>Course and No.</i>	<i>Quarter Hrs.</i>
Agricultural Engineering 111, 223, 331	9
Botany 102, 202	8
Chemistry 101	5
English 101, 102, 103	15
General Agriculture 101, 102, 103	3
Horticulture 111, 112, 235, 331, 332, 333, 335, 341, 445, 446, 447	35
Mathematics 111, 112	10
Air or Military Science	9
Electives	8
	<hr/>
	102

POULTRY HUSBANDRY

The two-year curriculum in poultry husbandry is designed to prepare students for the following positions:

1. Poultry farm operators
2. Helpers in grading and processing plants
3. Salesmen in equipment, feed

Recommended Courses

<i>Course and No.</i>	<i>Quarter Hrs.</i>
Agricultural Economics 222, 223	8
Agricultural Engineering 111, 122, 224	9
Animal Husbandry 210	3
Dairy Husbandry 201	3
English 101, 102	10
General Agriculture	3
Mathematics 111	5
Physical Science 101	5
Poultry Husbandry 211, 212, 221, 222, 331, 332, 334, 441, 442, 443 ...	37
Social Science 101	3
Air or Military Science	9
Electives	5
	<hr/> 100

DEPARTMENT OF BIOLOGY

ARTIS P. GRAVES, *Chairman*

The program of the Biology Department is designed to serve the needs of the college as a whole in the area of the biological sciences. The undergraduate courses of instruction are organized to provide training necessary for specialization in agricultural sciences, home economics, nursing, horticulture, and the teaching of Biology. The Department offers courses designed to meet the general education requirement of the college and a professional program for entrance into graduate, medical, dental and veterinary schools. A Master of Science degree in Education with concentration in Biology is also offered by the Biology Department.

A student may earn the Bachelor of Science degree in Biology by pursuing either of the two curricula offered by the department. The professional major is designed to meet the needs of students planning a vocation in industry, dentistry, medicine, veterinary medicine, or further graduate studies. The teaching major is designed for Biology majors who desire to meet the requirements for certification as secondary school teachers.

The curricula of the two programs are similarly structured in the freshman and sophomore years and the biological credit hour requirements of the programs are identical. Each, however, is geared toward its specific goal.

A graduate student may earn the Master of Science degree in Education with concentration in Biology by pursuing the thesis or the non-thesis program as described in the graduate college program.

Professional Major. The professional major requires the student to complete a minimum of 48 quarter hours in the major field consisting of the following courses: Botany 101, 102; Microbiology 202; Zoology 101, 102, 201, 301, 302, 303, 306, 402, 404. The professional major is further required to complete the following courses in related sciences and other areas: Chemistry 101, 102, 103, 221, 222, 223; Physics 201, 202, 203; Mathematics

111, 112, 113; English 101, 102, 103, 201, 210; Education 101, 201, 202; French or German 101, 102, 103; Humanities 201, 202, 203; Psychology 201; Social Science 101, 102, 103; Physical Education, 6 hours; Air or Military Science, 9 hours; and 12 hours of free electives.

Teaching Major. This program requires a minimum of 48 quarter hours in Biology. These credits must include the following courses: Botany 101, 102; Microbiology 202; Zoology 101, 102, 201, 301, 303, 304, 306, 402, 404. Related science requirements consist of: Chemistry 101, 102, 103, 221; Physics 201, 202; Earth Science 211, 212. Teacher certification requirements consist of the following courses: Psychology 203, 301; Education 201, 202, 301, 311, 402, 501. Other requirements include Education 101; English 101, 102, 103, 201, 210; French or German 101, 102, 103; Humanities 201, 202, 203; Mathematics 111, 112, 113; Psychology 201; Physical Education, 6 hours; Social Science 101, 102, 103; and 9 hours of Air or Military Science.

A minimum of 32 quarter hours in Biology is required of students who minor in Biology. The minor consists of the following courses, or their equivalent: Botany 101, 102; Zoology 101, 102, 201, 301, 302, 402.

It is suggested that persons planning to apply for admission to medical schools should pursue a major in Biology, or a major in Chemistry and a minor in Biology.

Suggested Program for Biological Science Majors*

PROFESSIONAL MAJOR CURRICULUM

Freshman Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Air or Military Science 101, 102, 103 (Men)	1	1	1
Education 101	0	—	—
English 101, 102, 103	5	5	5
Mathematics 111, 112, 113	5	5	5
Physical Education 101, 103, 111, or 131 (Men)	1	1	1
Physical Education 102, 104, 106 (Women)	1	1	1
Social Science 101, 102, 103	3	3	3
Zoology 101, 102, Botany 101 or Botany 101, 102, Zoology 101	4	4	4
	19	19	19

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Air or Military Science 201, 202, 203	2	2	2
Botany 102, Zoology 201, Bact. 202 or Zoology 102, Zoology 201, Bact. 202	4	4	4
Chemistry 101, 102, 103	5	5	5
English 201, 210	3	—	3
Humanities 201, 202, 203	3	3	3
Physical Education (200 Series)	1	1	1
Psychology 201	—	5	—
	18	20	18

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 201, 202	3	3	—
Chemistry 221, 222, 223	5	5	5
French or German 101, 102, 103	5	5	5
Zoology 301, 302, 303	4	4	4
Electives	—	—	3
	17	17	17

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Physics 201, 202, 203	5	5	5
Zoology 306, 402, 404	4	4	4
Electives	3	3	3
	12	12	12

TEACHING CURRICULUM**Freshman Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Air or Military Science 101, 102, 103	1	1	1
Education 101	0	—	—
English 101, 102, 103	5	5	5
Mathematics 111, 112, 113	5	5	5
Physical Education 101, 103, 111, or 131 (Men) ..	1	1	1
Physical Education 102, 104, 106 (Women) ..	1	1	1
Social Science 101, 102, 103	3	3	3
Zoology 101, 102, Botany 101 or Botany 101, 102, Zoology 101	4	4	4
	19	19	19

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Air or Military Science 201, 202, 203	2	2	2
Botany 102, Zoology 201, Bact. 202 or Zoology 102, Zoology 201, Bact. 202	4	4	4
Chemistry 101, 102, 103	5	5	5
English 201, 210	3	—	3
Humanities 201, 202, 203	3	3	3
Physical Education (200 Series)	1	1	1
Psychology 201	—	5	—
	18	20	18

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 201, 202, Guidance 501	3	3	3
Chemistry 221	5	—	—
French or German 101, 102, 103	5	5	5
Psychology 203, 301	—	3	3
Zoology 301, 303, 304	4	4	4
Zoology 306	—	4	—
Earth Science 211, 212	3	—	3
	20	19	18

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 301, 311, 402	3	5	10
Physics 201, 202	5	5	—
Zoology 402, 404	4	4	—
	<hr/> 12	<hr/> 14	<hr/> 10

COURSE IN BIOLOGICAL SCIENCE**Undergraduate****101. Biological Science.**

Credit 5(4-2)

This is a general education course that stresses the objectives presented under the general education program of the School of Education and General Studies. It is structured to meet the needs of students who plan to teach (a) at the pre-school level, (b) at the elementary school level, (c) at the secondary level in a non-science mathematics area, and (d) in the area of music. In addition, this course is designed for freshmen who plan to concentrate in the divisions of the Humanities or the Social Sciences.

COURSES IN BACTERIOLOGY**Undergraduate****201. Microbiology.**

Credit 5(3-4)

(Formerly Bacteriology 112.)

A survey of the principles and techniques of microbiology and immunology with special emphasis on their application to nursing.

202. General Microbiology.

Credit 4(2-4)

(Formerly General Bacteriology 123.)

A general course designed to orient the student within the world of microscopic living things, including yeasts, molds, bacteria, and rickettsiae. Viruses are also considered. Detailed study will be given to bacteria as the prototypes of all microorganisms. Relationships among microorganisms and selected microorganisms are emphasized; a prerequisite to all other course in bacteriology above the sophomore level.

302. Dairy Bacteriology.

Credit 4(2-4)

(Formerly Bacteriology 144.)

A general course which considers some of the common organisms associated with normal, and abnormal fermentations of milk; the role of microorganisms in the production and decomposition of various dairy products is also considered.

303. Soil Bacteriology.

Credit 4(2-4)

(Formerly Bacteriology 145.)

The role of microorganisms in soil fertility. Special emphasis is on the activity of the nitrogen-fixing bacteria and also those concerned in the decomposition of organic waste materials.

Advanced Undergraduate and Graduate**501. Principles and Practices of Immunology.**

Credit 3(3-0)

In this course the fundamental mechanism of immunological reactions and their theoretical foundations will be studied. Selected lectures will deal with antigenic and chemical composition of certain microorganisms and methods of laboratory practice, including some clinical applications. Prerequisite: Bacteriology 202.

* These programs are effective for persons enrolling after September 1, 1962.

COURSES IN BOTANY**Undergraduate**

101. General Botany. Credit 4(2-4)
(Formerly Botany 111.)

Plants as living organisms constituting an integrated part of man's environments; general plant structure, general classification, evolutionary tendencies and living processes.

102. General Botany. Credit 4(2-4)

Flowering plants as living organisms constituting an integrated part of man's environment, general plant structure, cells, tissues, organs, and living processes; general classification; heredity in plants and evolutionary tendencies.

201. Plant Taxonomy. Credit 5(3-4)
(Formerly Botany 112.)

The systematic organization of the plant kingdom; emphasis on identification and classification of important plant genera and families.

202. Plant Physiology. Credit 4(2-4)
(Formerly Botany 131.)

An analysis of complex living processes occurring in plants and an attempt to explain them in terms of chemistry and physics.

301. Plant Pathology. Credit 3(2-2)
(Formerly Botany 133.)

Basic factors governing the development of plant diseases including host-parasite relationships, effect of environment on disease development and the nature of disease resistance.

Advanced Undergraduate and Graduate

504. Special Problems in Botany. Credit 3(3-0)

Open to advanced students in botany for investigation of specific problems.

505. Plant Biology. Credit 4(3-2)

A presentation of fundamental botanical concepts to broaden the background of high school biology teachers. Bacteria, fungi, and other microscopic plants will be considered as well as certain higher forms of plants. This course will consist of lectures, laboratory projects, and field trips.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

611. Essentials of Plant Anatomy. Credit 4(3-4)
Prerequisite: Botany 505 or equivalent.

612. Applied Plant Ecology. Credit 4(3-4)
Prerequisite: Botany 505, 611 or equivalent.

COURSE IN GENERAL SCIENCE

506. General Science for Elementary Teachers. Credit 3(3-0)

This course will consider some of the fundamental principles of the life and physical sciences in an integrated manner in the light of present society needs.

COURSES IN ZOOLOGY**Undergraduate**

101. **General Invertebrate Zoology.** Credit 4(2-4)
(Formerly Zoology 111.)

A general concept of the basic principles of Zoology and a brief survey of the animal kingdom. Various areas of animal biology are studied, including cellular organizations, classification, morphology, and physiology of representative forms from the protozoa through the phylum arthropoda.

102. **General Zoology.** Credit 4(2-4)
(Formerly Zoology 112)

The continuation of Zoology 101 which presents the more specific background information required of majors in related Biological Science disciplines such as Nursing, Animal Husbandry, Home Economics, and Physical Education. Some consideration is given to representative members of Mollusca and Echinodermata, with more detailed emphasis on organ systems of frog, foetal pig and man.

201. **Comparative Anatomy of the Vertebrates.** Credit 4(2-4)
(Formerly Zoology 123.)

A comparative study of chordate organ systems with rather detailed emphasis on the primitive vertebrates, dogfish shark and the turtle. Prerequisite: Zoology 102.

202. **Advanced Invertebrate Zoology.** Credit 4(2-4)
(Formerly Zoology 122.)

Comprehensive consideration of the morphology, function, phylogeny, classification and the life histories of representative forms of lower and higher invertebrate groups exclusive of insects. Prerequisites: Zoology 101, 102.

203. **Human Anatomy and Physiology.** Credit 5(3-4)
(Formerly Zoology 121.)

A study of the general structure and function of the organ systems of man. The laboratory work shall consist of the dissection of the foetal pig and a study of the human skeleton. Required of Home Economics majors. Prerequisite: Zoology 102.

301. **Mammalian Anatomy.** Credit 4(2-4)
(Formerly Zoology 124.)

Lectures and detailed laboratory dissections on the cat, dog, or foetal sheep and other related mammals as the basis for an understanding of human anatomy. Prerequisite: Zoology 201.

302. **Histology.** Credit 4(2-4)
(Formerly Zoology 132.)

An intensive study of the cell and cellular organization of the tissues and organs of various animals. Prerequisite: Zoology 102 or its equivalent.

303. **Principles of Genetics.** Credit 4(2-4)
(Formerly Zoology 142.)

An introductory experimental course treating with elementary principles of genetics and their operation, significance in plants, animals, and human populations. Prerequisites: Zoology 101, 102 or equivalent.

304. **General Entomology.** Credit 4(2-4)
(Formerly Zoology 134.)

Elementary structure, description, and habits of the principal orders of insects. Laboratory work will consist of collecting, mounting, preserving, and classification of principal insect representatives. Recommended for general science and biological science majors. Prerequisite: Zoology 101.

- 305. Economic Entomology.** Credit 4(2-4)
(Formerly Zoology 133.)

Elementary structure, life histories, classification, and control of insect pests and related arthropods. Recommended for students majoring in one of the agricultural sciences. Prerequisite: Zoology 101 or 102.

- 306. General Microtechnique.** Credit 4(2-4)
(Formerly Zoology 505.)

Designed to develop skills in the preparation of cells, tissues and organs for microscopic observation and study. Prerequisites: Zoology 101, 102 or equivalent.

- 307. Human Anatomy.** Credit 5(3-4)
(Formerly Zoology 131)

Lectures, demonstrations and the laboratory study of manikins and the human skeleton. Organ systems of such mammals as the cat and pig are dissected and compared with conditions as they exist in man. Required of majors in Physical Education and the School of Nursing. Prerequisite: Zoology 102.

- 401. Human Physiology.** Credit 5(5-0)
(Formerly Zoology 141a and 141b)

Lectures and laboratory demonstrations of functional activity of common laboratory animals. This introductory course correlates physiological principles with the performance of the integrated organ systems of man. Required of majors in the School of Nursing and Physical Education. Prerequisite: Zoology 307.

- 402. Vertebrate Embryology.** Credit 4(2-4)
(Formerly Zoology 143.)

Study of the developmental stages of selected vertebrates. The materials are treated comparatively and consist of amphibian, bird, rodent, and references to mammalian forms. Prerequisite: Zoology 201 or special consent of instructor.

- 403. Vertebrate Embryology.** Credit 4(2-4)
(Formerly Zoology 144.)

Stresses variations in rodent and mammalian development and applications of experimental embryological procedures. Prerequisite: Zoology 402.

- 404. General Physiology.** Credit 4(2-4)

A treatment of the fundamental physiological processes of living systems. Laboratory work involves selected experiments on physiology of movement, respiration, blood and circulation, digestion, excretion and nervous transmission. Prerequisites: Zoology 101, 102 and one year of General Chemistry.

Advanced Undergraduate and Graduate

- 501. Special Problems in Zoology.** Credit 3(3-0)
Open to students qualified to do research in Zoology.

- 502. Mammalian Biology.** Credit 3(3-0)
Study of the evolutionary history, classification, adaptation and variation of representative mammals with special emphasis on the prenatal variations in prototherian, metatherian and eutherian types. Prerequisites: Zoology 101 and Botany 101.

- 503. Biology of Sex.** Credit 3(3-0)
Lectures on the origin and development of the germ cells and reproductive systems in selected animal forms. Prerequisites: Zoology 101, 102 or equivalent.

504. Cytology. Credit 3(3-0)
Study of the cell with lectures and periodic student reports on modern advances in cellular biology. Prerequisite: Zoology 302 or special consent of instructor.

505. General Microtechnique. Credit 4(2-4)
Designed to develop skills in the preparation of cells, tissues and organs for microscopic observation and study. Prerequisites: Zoology 101, 102 or equivalent.

506. Nature Study. Credit 3(3-0)
A study of diversified organisms, their habits, life histories, defenses, sex relationships, periodic activities and economic values designed to acquaint the student with fundamental knowledge that should lead to a fuller appreciation of nature.

507. Experimental Embryology. Credit 3(3-0)
A comprehensive lecture-seminar course covering the more recent literature on experimental embryology and development physiology. Experimental studies treating with amphibian, chick and rodent development are designed as laboratory projects. Prerequisite: Zoology 402, 403 or equivalent.

508. Animal Biology Credit 4(3-2)
A lecture-laboratory course stressing fundamental concepts and principles of biology with the aim of strengthening the background of high school teachers. Emphasis is placed on the principles of animal origin, structure, function, development, and ecological relationships.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

601. Projects in Biology. Credit 2(0-4)
Prerequisite: Consent of instructor.

602. Seminar in Biology. Credit 1(1-0)

611. Applied Invertebrate Zoology. Credit 4(3-4)
Prerequisite: Zoology 508 or equivalent.

612. Fundamentals of Vertebrate Morphology. Credit 4(3-4)
Prerequisite: Zoology 508 or equivalent.

613. Basic Protozoology. Credit 4(3-4)
Prerequisite: Zoology 508.

614. Introductory Experimental Zoology. Credit 4(3-4)
Prerequisite: Zoology 612 or equivalent.

615. Invertebrate Biology for Elementary and Secondary School Teachers. Credit 3(3-0)

DEPARTMENT OF CHEMISTRY

GERALD A. EDWARDS, *Chairman*

The Department of Chemistry offers two major curricula leading to the Bachelor of Science degree. The curriculum of the professional major is designed to meet the needs of students planning either to begin professional careers in chemistry upon graduation, or to engage in further study in the field at the graduate level. The teaching major is designed to give the student a thorough foundation in chemistry while meeting the requirements for certification as a teacher at the secondary school level. This curriculum differs from the customary teaching major in that it also provides sufficient training to allow the student to do bonafide work at the graduate level in chemistry, as well as in education.

The two curricula are identical in the freshman and sophomore years. The student, therefore, need not reach a final decision regarding his choice of a profession until the beginning of his third year.

Professional Major. This program requires that the student complete 70* quarter hours in chemistry consisting of the following courses: 101, 102, 103, 108, 221, 222, 223, 301, 302, 331, 332, 401, 402, 431, 441 442 443 and five quarter hours in advanced chemistry courses, including 403. Other requirements of chemistry majors are the following: Mathematics 111, 112, 113, 221, 222, 223; English 101, 102, 103, and five quarter hours of literature; German 101, 102, 103, 205; Physics 201, 202, 203; Botany 101; Zoology 101; Education 101; 15 quarter hours of social science (History 210, 310; and Economics 310 are recommended); and six quarter hours of physical education. While the College does not require a minor for graduation, the above requirements in mathematics are equivalent to a minor in that area. For graduation, a student must maintain a grade point average of 2.0 or more in his major field.

Teaching Major. The teaching major requires a minimum of 56* quarter hours credit in chemistry including Chemistry 101, 102, 103, 108, 221, 222, 223, 331, 332, 441, 442, 443. Other requirements include Mathematics 111, 112, 113, 221, 222, 223; Physics 201, 202, 203; Botany 101, Zoology 101; German 101, 102, 103; Psychology 201, 203, 301, 302; Education 201, 202, 301, 311, 402; English 101, 102, 103 and five quarter hours of literature; Earth Science 211 and 212; and six quarter hours of physical education. The mathematics requirements of this curriculum are equivalent to a minor. Students may elect about 10 quarter hours in other courses of their choice without exceeding the normal load. Persons completing this major sequence may be certified as chemistry, mathematics, or science (biology, chemistry, physics, or general science) teachers. A grade point average of 2.5 is required in chemistry courses in order to enroll in this curriculum.

Minor. A minor in chemistry requires a minimum of 35-40* quarter hours, consisting of the following courses: 101, 102, 103, 221, 222, 223, 331, 332.

* Students transferring into the Department after the freshman year may omit Chemistry 108.

Suggested Programs for Chemistry Majors
PROFESSIONAL MAJOR CURRICULUM

Freshman Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Chemistry 101, 102, 103	5	5	5
Chemistry 108	—	1	—
Education 101	0	—	—
English 101, 102, 103	5	5	5
Mathematics 111, 112, 113	5	5	5
Military or Air Science	1	1	1
Physical Education	1	1	1
	<hr/> 17	<hr/> 18	<hr/> 17

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Chemistry 221, 222, 223	5	5	5
German 101, 102, 103	5	5	5
Mathematics 221, 222, 223	5	5	5
Military or Air Science	2	2	2
Physical Education	1	1	1
	<hr/> 18	<hr/> 18	<hr/> 18

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Botany 101, Zoology 101	—	5	4
Chemistry 301, 302	—	1	1
Chemistry 331, 332, 441	5	5	5
English 330 or 321	5	—	—
German 205	3	—	—
Physics 201, 202, 203	5	5	5
Electives	—	3	3
	<hr/> 18	<hr/> 19	<hr/> 18

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Chemistry 401, 402	1	1	—
Chemistry 442, 443, 431	5	5	5
Chemistry Electives	2-5	2-5	2-5
Economics 310	—	—	5
History 210, 310	5	5	—
Electives	3-5	3-5	3-5
	<hr/> 16 to 21	<hr/> 16 to 21	<hr/> 15 to 20

TEACHING MAJOR CURRICULUM

The Freshman and Sophomore years of the curriculum for those enrolled in the teaching major are identical with those for students enrolled in the professional major curriculum.

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Botany 101	—	—	5
Education 201, 202	3	3	—
Chemistry 331, 332, 441	5	5	5
Psychology 201, 203, 304	5	3	3
Psychology 301	—	3	—
Physics 201, 202, 203	5	5	5
	18	19	18

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Chemistry 442, 443	5	5	—
Education 301	—	—	3
Education 311, 402	—	5	10
English 330 or 321	5	—	—
Earth Science 211 and 212	3	3	—
Zoology 101	—	4	—
Electives	5-7	—	—
	18-20	17	13

COURSES IN CHEMISTRY**Undergraduate**

101. General Chemistry. Credit 5(3-4)
(Formerly 111.)

Introduction, elements, compounds, atomic structure, bonding, gases, and calculations.

102. General Chemistry. Credit 5(3-4)
(Formerly 112.)

Solids, liquids, solutions, electrolytes, oxidation-reduction and the halogens. Prerequisite: Chemistry 101.

103. General Chemistry and Qualitative Analysis. Credit 5(3-6)
(Formerly 113.)

A continuation of general chemistry including an introduction to qualitative inorganic analysis. Prerequisite: Chemistry 102.

104. General Chemistry. Credit 5(3-4)

A continuation of Chemistry 102 with an emphasis on organic chemistry. This course is recommended as a terminal course for non-science majors. Prerequisite: Chemistry 102.

105. General Chemistry for Nurses. Credit 5(3-4)
(Formerly 107.)

Introduction to techniques and concepts in chemistry necessary for nursing students; includes writing and interpretation of symbols, formulas, equations; atomic structure; composition and reactions of matter.

- 106. General Chemistry for Nurses.** Credit 5(3-4)
(Formerly 108.)

A continuation of Chemistry 105; includes an introduction to organic chemistry.

- 107. General Chemistry for Nurses.** Credit 5(3-4)
(Formerly 109.)

A continuation of Chemistry 106; includes a study of the chemical changes taking place during life processes.

- 108. Chemistry Orientation.** Credit 1(1-0)
(Formerly 115.)

A series of weekly lectures and discussions on the nature and requirements of the chemical profession; the application of chemistry to modern living; and other selected topics.

- 221. Organic Chemistry.** Credit 5(3-6)
(Formerly 131.)

Aliphatic compounds and their derivatives. Prerequisite: Chemistry 103 or 104.

- 222. Organic Chemistry.** Credit 5(3-6)
(Formerly 132.)

Complex aliphatic compounds, introduction to aromatic compounds and their derivatives. Prerequisite: Chemistry 221.

- 223. Organic Chemistry.** Credit 5(3-4)
(Formerly 133.)

Complex aromatic compounds and the systematic identification of organic compounds. Prerequisite: Chemistry 222.

- 251. Elementary Biochemistry.** Credit 5(3-4)
(Formerly 147.)

A Study of fundamental cellular constituents. Emphasis is placed on physiological applications and analyses. Prerequisites: Chemistry 132. Not accepted for credit toward a degree in chemistry.

- 301, 302. Current Trends in Chemistry.** Credit 1(1-0) each
(Formerly 139a,b.)

A series of bi-weekly lectures and discussions on special problems in chemistry and of the chemical profession not covered in formal courses. The course will include introduction to the chemical literature.

- 331. Quantitative Analysis I.** Credit 5(2-6)
(Formerly 122.)

Volumetric analysis including theory and calculations associated with acid-base equilibria, oxidation-reduction, and precipitation-complexation titrimetric methods. Prerequisite: Chemistry 103.

- 332. Quantitative Analysis II.** Credit 5(2-6)
(Formerly 123.)

Continuation of Chemistry 331. This course also includes theory and calculations associated with gravimetric determinations and electro-deposition measurements. Prerequisite: Chemistry 331.

- 401, 402. Current Trends in Chemistry.** Credit 1(1-0) each
(Formerly 140a,b.)

A continuation of Chemistry 302, with increased student participation. Work will include a seminar in which students enrolled in Chemistry 403 will report progress in their research problems.

403. **Introduction to Chemical Research.** Credit 3(0-6)
(Formerly 145.)

Makes use of the laboratory and library facilities in studying minor problems of research. Prerequisite: Advanced standing and permission of department. May be taken for credit during more than one quarter.

431. **Quantitative Analysis III.** Credit 5(2-9)

An introduction to elementary instrumental chemical analysis including theory and calculations associated with colorimetric, spectrophotometric and electroanalytical measurements. Prerequisite: One year of Physical Chemistry.

441. **Physical Chemistry.** Credit 5(3-4)
(Formerly 141.)

Atomic and nuclear structure, gaseous and crystalline states, physical properties and molecular structure, and the laws of Thermodynamics. Prerequisites: Physics 202, Math. 223, Chemistry 332, and Physics 203, concurrently.

442. **Physical Chemistry.** Credit 5(3-4)
(Formerly 142.)

Studies of the liquid state, solutions, chemical equilibria, and phase diagrams. Prerequisite: Chemistry 441.

443. **Physical Chemistry.** Credit 5(3-4)
(Formerly 143.)

A study of Chemical Kinetics, electric conductance, ionic equilibria, and colloids. Prerequisite: Chemistry 442.

Advanced Undergraduate and Graduate

501. **Inorganic Chemistry.** Credit 3(3-0)
(Formerly 511.)

A lecture course covering selected topics in Inorganic Chemistry; designed for science teachers having a limited background in Chemistry. Prerequisite: Chemistry 103. Not accepted for credit toward a degree in Chemistry.

502. **Organic Chemistry.** Credit 3(3-0)
(Formerly 512.)

A lecture course covering selected topics in Organic Chemistry; designed for science teachers with a limited background in chemistry. Prerequisite: Chemistry 103. Not accepted for credit toward a degree in Chemistry.

503. **Advanced General Chemistry.** Credit 5(4-2)
(Formerly 513.)

A lecture-laboratory course in which the laws and concepts of chemistry are presented with greater depth and clarity than in customary general chemistry courses.

504. **Recent Advances in Chemistry.** Credit 3(3-0)
(Formerly 514.)

A lecture-demonstration course in which recent occurrences in the major branches of chemistry and chemical education are presented. The course includes a series of student seminars resulting from library research on topics considered in the class.

505. **Industrial Chemistry** Credit 5(5-0)
(Formerly 641)

A review of the industrial production of chemical substances and the application of chemistry to various industrial processes.

- 510. Inorganic Synthesis.** Credit 1-3(0-2 to 6)
(Formerly 153.)

Discussion of theoretical principles of synthesis and development of manipulative skills. Prerequisites: One year of Organic Chemistry and two quarters of Quantitative Analysis.

- 511, 512. Advanced Inorganic Chemistry.** Credit 3(3-0) each quarter
(Formerly 151, 152 or 551, 552.)

A sequence course in the theoretical approach to the systematization of inorganic chemistry. Prerequisite: Two quarters of Physical Chemistry.

- 524. Qualitative Organic Chemistry.** Credit 5(3-4)

A course in the systematic identification of organic compounds. Prerequisite: One year of Organic Chemistry.

- 531. Instrumental Methods of Analysis.** Credit 5(2-6)

A study of the theory and the operational features of some of the more important instruments that are currently being used as analytical tools such as U.V., visible-light, and infrared spectrophotometers, electroanalytical instruments, thermometric titrators, fluorimeters, etc. Prerequisite: Chemistry 431 or equivalent.

- 541. Radiochemistry.** Credit 5(3-4)
(Formerly 155 or 555.)

A study of the fundamental concepts, processes, and applications of nuclear chemistry, including natural and artificial radioactivity, sources, and chemistry of the radioelements. Open to advanced majors and others with sufficient background in chemistry and physics. Prerequisites: Chemistry 442 or Physics 380.

- 542. Radioisotope Techniques and Applications.** Credit 3(1-4)
(Formerly 156 or 556.)

The techniques of measuring and handling radioisotopes and their use in chemistry, biology, and other fields. Open to majors and non-majors. Prerequisite: Chemistry 103 or 104.

- 543. Introduction to Quantum Mechanics.** Credit 3(3-0)

Discussion of Quantum theory; wave mechanics and its application to simple systems; the variation method; valence bond and molecular orbital methods. Prerequisite: Math. 223, Physics 203, and Chemistry 442 prior or concurrent.

- 551. General Biochemistry.** Credit 5(3-4)
(Formerly 148.)

A lecture and laboratory course describing the chemical composition, reactions, and metabolic significance of lipids, carbohydrates, proteins, vitamins, hormones, enzymes, minerals and water. Prerequisite: Chemistry 223, 332, and 442.

- 649. Chemical Kinetics.** Credit 3(3-0)

Theory of rate processes; application to study of reaction mechanisms. Prerequisite: Math 223 and Chemistry 443.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

- 601. Seminar.** Credit 1(1-0)
(Formerly 645.)

602. Chemical Research. Credit 2-6(0-4 to 12)
(Formerly 646.)
611. Structural Inorganic Chemistry. Credit 3 (3-0)
Prerequisite: Chemistry 512.
615. Special Problems in Inorganic Chemistry. Credit 2-5(1-2 to 8)
616. Selected Topics in Inorganic Chemistry. Credit 3(3-0)
Prerequisite: Chemistry 512 or permission of the instructor.
621. Elements of Organic Chemistry. Credit 5(4-1)
- 622, 623. Advanced Organic Chemistry. Credit 3(3-0) each quarter
Prerequisite: One year of Organic Chemistry.
624. Organic Reactions. Credit 3(3-0)
Prerequisite: Two quarters of Advanced Organic Chemistry.
625. Special Problems in Organic Chemistry. Credit 2 to 5(1-2 to 8)
626. Selected Topics in Organic Chemistry. Credit 3(3-0)
627. Organic Preparations. Credit 1 to 3 (0-2 to 6).
Prerequisite: One year of Organic Chemistry.
631. Modern Analytical Chemistry. Credit 5(4-1)
(Formerly 611.)
- 632, 633. Advanced Analytical Chemistry. Credit 3(3-0) each quarter
Prerequisite: One year of Analytical Chemistry.
634. Electrometric Measurements. Credit 3(1-4)
Prerequisites: One year of Analytical Chemistry or permission of the Chemistry Department.
635. Special Problems in Analytical Chemistry. Credit 2 to 5(1-2 to 8)
636. Selected Topics in Analytical Chemistry. Credit 3(3-0)
- 641, 642. Principles of Physical Chemistry. Credit 10(8-6)
(Formerly 631.)
643. Chemical Thermodynamics. Credit 3(3-0)
Prerequisite: Two quarters of Physical Chemistry.
644. Chemical Spectroscopy. Credit 4(3-2)
Prerequisite: One year of Physical Chemistry.
645. Special Problems in Physical Chemistry. Credit 2 to 5(1-2 to 8)
646. Selected Topics in Physical Chemistry. Credit 3(3-0)
647. Electrochemistry. Credit 3(3-0)
Prerequisite: One year of Physical Chemistry.
648. Colloid Chemistry. Credit 3(3-0)
Prerequisite: One year of Physical Chemistry.
655. Special Problems in Biochemistry. Credit 2 to 5(1-2 to 8)
656. Selected Topics in Biochemistry. Credit 3(3-0)
699. Thesis Research Credit 3-5

COURSES IN PHYSICAL SCIENCE**Undergraduate**

101, 102. The Physical Universe.
(Formerly 220, 230.)

Credit 5(4-2) each

An integrated treatment of astronomy, chemistry, geology ("earth science"), and physics. Laboratories are devoted to demonstrations and student experiments and questions.

Advanced Undergraduate and Graduate

501. Seminar in Physical Science for Elementary School Teachers.

Credit 3(0-6)

Preparation, presentation, and demonstration of subject matter for elementary school science. This course provides opportunity for full discussion and for student participation. Prerequisite: Minimum of three years teaching experience in upper elementary grades.

DEPARTMENT OF HOME ECONOMICS

MRS. CLARA V. EVANS, *Chairman*

The curricular requirements of the Department of Home Economics have been selected to provide a background for the development of competencies and values which will:

1. Make possible satisfying personal, group, and family relationships as a basis for active participation in a democratic society;
2. Lead to the enrichment of home and family living through the appreciation and use of art and advances in science and technology;
3. Develop understanding and appreciation of varying cultural backgrounds;
4. Prepare the individual for gainful employment in one of the major areas of the profession.

CORE REQUIREMENTS

The core requirements consist of courses which must be taken by all students who are enrolled in the Home Economics Department.

The *departmental core* has been designed to enrich the basic preparation of all home economics majors by focusing course content on the needs of students in adjusting as individuals and as family members to changes occurring in a democratic society.

The *interdepartmental core* is composed of courses which will provide a broad educational background by furnishing basic information in the physical, biological, social and behavioral sciences, the humanities, and the communication skills.

DEPARTMENTAL CORE**Freshman-Sophomore Years**

<i>Course and No.</i>	<i>Title</i>	<i>Credit</i>	<i>Hrs.</i>
H. Ec. 100	Introduction to Home Economics	2	
C. T. R. A. 101	Clothing for the Family	4	
F. & N. 101	Family Foods	4	
H. Ec. 101	The Individual and His Family	3	
H. Ec. 201	Contemporary Housing	4	

Junior-Senior Years

H. Ec. 301	Consumer Problems	3	
H. Ec. 302	Marriage and Family Relations	3	

TOTAL QUARTER HOURS	23
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INTERDEPARTMENTAL CORE**Freshman-Sophomore Years**

Art 217	Beginning Design	3	
Chem. 101, 102	General Chemistry	10	
Chem. 103	*Gen. Chem. and Qualitative Analysis		
or			
Chem. 104	General Chemistry	5	
Eng. 101, 102, 103	Freshman Composition I, II, III	15	
Humanities 201	An Introduction to the Humanities	3	
Math. 111	College Algebra	5	
Physics 111	Principles of Physics I	5	
Psy. 201	General Psychology	5	
Soc. Sc. 101	World Civilization and Culture	3	
Soc. Sc. 102	Man and His Social Institutions	3	
Soc. Sc. 103	Contemporary Social, Economic and Political Problems	3	

Junior-Senior Year

Ec. 310	Principles of Economics	5	
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TOTAL QUARTER HOURS	65
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TOTAL CORE REQUIREMENTS	88
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Men who are enrolled in Home Economics should consult with their advisers in meeting the College requirement for two years of Air or Military Science.

Home Economics courses are not restricted to majors in the Department. All core courses may be elected by any student of the college. Admission to major courses will be approved if permission is granted by the instructor of the course.

MAJOR AREAS IN THE DEPARTMENT

The department offers the Bachelor of Science degree with majors in the following areas: (1) Clothing, Textiles and Related Art; (2) Foods and Nutrition; (3) Institution Management; (4) Home Economics Education; and (5) Nursery School and Kindergarten Education.

A student is eligible for graduation upon the completion of all major course requirements with electives to make 200 hours and a grade point average of 2.00.

* To be taken by majors in Foods and Nutrition, and may be elected by Institution Management majors taking the therapeutic option.

For information concerning the graduation requirements for each of the five areas consult the listings for the desired major under Curriculum Requirements by Major Areas.

CLOTHING, TEXTILES AND RELATED ART

This major leads to professional opportunities for men and women in clothing, textiles, fashions and interior design.

Students majoring in clothing, textiles, and related art who are interested in men's or women's wear, fashions, textiles or interior design should consult their academic adviser beginning with the junior year and plan a program according to their interests. All seniors must enroll in C.T.R.A. 402, 501, 503 and 505.

Suggested Program for Clothing, Textiles and Related Art Major

Freshman Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Art 217 or 111	3	—	—
C.T.R.A. 101, 205, 206 or 207	—	7	3
English 101, 102, 103	5	5	5
Home Economics 100, 101, 102	2	—	6
Mathematics 111	5	—	—
Physical Education	1	1	1
Social Science 102, 103	—	3	3
	16	16	18

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Art 217 or 111	3	—	—
Chemistry 101, 102, 103	5	5	5
C.T.R.A. 201, 202, 204	5	5	5
Foods and Nutrition 101	—	4	—
Home Economics 201, 204	—	4	3
Humanities 201	3	—	—
Physical Education	1	1	1
Psychology 201	—	—	5
Social Science 101	3	—	—
	20	19	19

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
C.T.R.A. 203, 304 and Clothing Electives ...	10	10-12	10-12
Economics 310	5	—	—
Home Economics 301, 302	—	3	3
Physics 111	—	—	5
Zoology 102, 203	4	4	—
	19	17-19	18-20

Senior Year

Arranged with major advisers.

FOODS AND NUTRITION

The major in foods and nutrition is designed to provide a strong scientific background for the interpretation and creative use of a knowledge of foods and nutrition in positions as clinical nutritionists, assistant technicians in food testing and research, and in preparation for graduate study. Study on the graduate level leads to opportunities as nutrition specialists, food specialists in journalism, radio, and television, public health nutritionists, food technologists, college teachers, and research technicians in foods and nutrition.

Suggested Program for Foods and Nutrition Major**Freshman Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Chemistry 101, 102, 103	5	5	5
English 101, 102, 103	5	5	5
Foods and Nutrition 101	—	4	—
Home Economics Ed. 100, 101	2	—	3
Mathematics 111, 112, 113	5	5	5
Physical Education	1	1	1
	<u>18</u>	<u>20</u>	<u>19</u>

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Art 217	—	—	3
Bacteriology 202	—	—	4
Chemistry 221, 222, 223	5	5	5
Foods and Nutrition 201, 202, 203	5	4	3
Humanities 201	3	—	—
Physical Education	1	1	1
Social Science 102, 103	—	3	3
Zoology 102, 203	4	5	—
	<u>18</u>	<u>18</u>	<u>19</u>

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Chemistry 331, 332, 551 & 552	5	5	5
C.T.R.A. 101	—	4	—
Economics 310	—	—	5
Foods and Nutrition 206, 205, 302	3	5	5
Home Economics 201, 301, 302	4	3	3
Psychology 201	5	—	—
Social Science 101	3	—	—
	<u>20</u>	<u>17</u>	<u>18</u>

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 204	3	—	—
English 210	—	3	—
Foods and Nutrition 301, 504	—	3	4
Foods and Nutrition 501, 502, 503	3	2	1
Home Economics 306 or Elective	—	5	5

Home Economics 401	5	—	—
Physics 111	5	—	—
Electives	3	3-5	5-8
	<u>19</u>	<u>16-8</u>	<u>15-18</u>

HOME ECONOMICS EDUCATION

The four-year curriculum in Home Economics Education is designed to prepare graduates for positions as (1) high school homemaking teachers, or (2) county home economics agents.

Three options are possible for the Winter and Spring Quarters of the senior year.

Option I—for students who desire to meet the State requirements for certification as a high school teacher.

Option II—for students who desire to meet the requirements of the Co-operative Extension Service as home economics county agents.

Option III—for students who desire to qualify as a teacher and county agent.

The selection of electives should be made in consultation with the student's adviser.

Suggested Programs for Home Economics Education Majors

Freshman Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Art 217	—	—	3
Chemistry 101, 102, 103 or 104	5	5	5
English 101, 102, 103	5	5	5
Foods and Nutrition 101	—	4	—
Home Economics 100, 101	2	—	3
Mathematics 111	5	—	—
Physical Education	1	1	1
Social Science 102, 103	—	3	3
	<u>18</u>	<u>18</u>	<u>20</u>

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Bacteriology 202	—	—	4
C.T.R.A. 101	—	4	—
Education 201, 202	3	—	3
Foods and Nutrition 201, 202, 203	5	4	3
Home Economics 201, 204	—	4	3
Humanities 201	3	—	—
Physical Education	1	1	1
Psychology 201	—	—	5
Social Science 101	3	—	—
Zoology 102, 203	4	5	—
	<u>19</u>	<u>19</u>	<u>19</u>

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
C.T.R.A. 201, 202, 204	5	5	5
Economics 310	5	—	—
English 210, 211	—	3	3
Foods and Nutrition 206	3	—	—
Home Economics 202, 301, 302, 303	5	3	6
Physics 111	—	5	—
Psychology 203, 301	—	3	3
	18	19	17

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter or Spring</i>	<i>Winter or Spring</i>
Education 312	5	—	—
Guidance 501	3	—	—
Home Economics 306 or elective	5	—	—
Home Economics 401	5	—	—
	18		
OPTION I			
Education 301, 312	—	13	—
Home Economics 306 or elective	—	—	5
Electives	—	—	10-15
			15-20
OPTION II			
Education 313	—	3	—
Home Economics 306 or elective	—	—	5
Home Economics 402	—	10	—
Electives	—	—	10-15
			15-20
OPTION III			
Education 301, 312	—	13	—
Education 313	—	—	3
Home Economics 402	—	—	10
	18	13	13

INSTITUTION MANAGEMENT

The Institution Management program is designed to meet the academic requirements of The American Dietetic Association. Graduates are eligible for internships in institutions that have received approval from the Association.

Institution Management offers excellent professional opportunities for men and women who are interested in the service of food for large groups of people. Two options are offered:

1. **OPTION A**—for students interested in Therapeutic or Administrative Dietetics in a hospital or clinic. It prepares the graduate for a Clinical Internship or graduate study.
2. **OPTION B**—for students interested in Food Service Administration in hospitals, business, industry or educational institutions. Selection of this option qualifies the graduate for (1) employment in assistant

supervisory positions in food businesses or industrial plant cafeterias, (2) the operation of private businesses, (3) approved Food Service Administration Internships, or (4) graduate study in hotel or food administration.

Suggested Programs for Institution Management Majors

OPTION A AND B

Freshman Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Art 217	—	—	3
Chemistry 101, 102, 103 or 104	5	5	5
English 101, 102, 103	5	5	5
Foods and Nutrition 101	—	4	—
Home Economics 100, 101	2	—	3
Mathematics 111	5	—	—
Physical Education	1	1	1
Social Science 102, 103	—	3	3
	18	18	20

OPTION A

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Bacteriology 202	—	—	4
Chemistry 221, 222, 223	5	5	5
C.T.R.A. 101	—	4	—
Foods and Nutrition 201, 202, 203	5	4	3
Institution Management 201	—	—	5
Physical Education	1	1	1
Social Science 101	3	—	—
Zoology 102, 203	4	5	—
	18	19	20

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Accounting 201, 202	3	3	—
Chemistry 251	—	—	5
Economics 310	—	—	5
Foods and Nutrition 206, 205, 302	3	5	5
Humanities 201	3	—	—
Institution Management 301, 302, 303	10	5	—
Psychology 201, 304	—	5	3
	19	18	18

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Foods and Nutrition 504	—	—	5
Home Economics 201, 301, 302	—	7	3
Institution Management 401, 501, 502, 503 ..	13	6	—
Physics 111	—	5	—
Psychology 403	—	—	5
Electives	—	0-2	3-7
	13	18-20	16-20

OPTION B**Sophomore Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Accounting 201, 202, 203	3	3	3
Bacteriology 202	—	—	4
C.T.R.A. 101	—	5	—
Foods and Nutrition 201, 202, 203	5	4	3
Humanities 201	3	—	—
Institution Management 201	—	—	5
Physical Education	1	1	1
Social Science 101	3	—	—
Zoology 102, 203	4	5	—
	19	18	18

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Accounting 301, 302	3	3	—
Business Administration 301, 305	3	3	—
Economics 310	—	—	5
Foods and Nutrition 206	3	—	—
Institution Management 301, 302, 303, 304 ..	10	5	5
Physics 111	—	—	5
Psychology 201	—	5	—
Elective	—	3-4	3-5
	19	19-20	18-20

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Acct. 304	3	—	3
Business Administration 302, 409	3	—	3
Home Economics 301, 302	—	3	3
Institution Management 401 & 501, 502 & 503	13	6	—
Electives	—	5-10	10-14
	19	14-19	16-20

NURSERY SCHOOL AND KINDERGARTEN EDUCATION

This program is designed to provide a broad educational background to serve as a basis for an intensive study of the developmental phases of children during their first five years.

The curricular requirements listed below assist the student in understanding early childhood and provide an opportunity for the application of educational and psychological principles to the planning and execution of programs for nursery school and kindergarten teaching. There is a great demand for qualified personnel to guide the development of children during these early years.

Graduates with a major in Nursery School and Kindergarten Education qualify (1) to become directors of or teachers in nursery schools, kindergartens, or day care centers, and (2) for admission to graduate study in preparation to become college teachers, clinical psychologists, teachers of

exceptional children, or directors of collegiate nursery schools or kindergartens.

Suggested Program in Nursery School and Kindergarten Education Major

Freshman Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Chemistry 101, 102, 103 or 104	5	5	5
C.T.R.A. 101 or F&N 101	—	4	—
English 101, 102, 103	5	5	5
Home Economics 100, 101	2	—	3
Mathematics 111	5	—	—
Physical Education	1	1	1
Social Science 102, 103	—	3	3
	18	18	17

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Art 217	3	—	—
C.T.R.A. 101 or F&N 101	—	4	—
Education 201	—	—	3
Foods and Nutrition 204	—	—	3
Home Economics 202, 203	5	3	—
Humanities 201	3	—	—
Music 100	—	—	1
N.S. & K. Ed. 201, 202, 203	—	3	6
Physical Education	1	1	1
Psychology 201	—	—	5
Social Science 101	3	—	—
Zoology 102, 203	4	5	—
	19	16	19

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Art 111, 112	3	3	—
Education 202, 203, 204	3	3	3
Economics 310	5	—	—
English 210, 211	—	3	3
Home Economics 201	—	4	—
Home Economics 301, 302	—	3	3
N.S. & K. Ed. 301, 302	6	—	—
Psychology 301, 302, 304	—	3	8
	17	19	17

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
N.S. & K. Ed. 401, 402 or 403	5	5	5
N.S. & K. Ed. 501, 503	—	3	1
Physics 111	5	—	—
Psychology 404	4	—	—
Special Education 501, 502	3	3	—
Electives	0-3	4-9	10-14
	17-20	15-20	16-20

COURSES IN CLOTHING, TEXTILES AND RELATED ART**Undergraduate**

- 101. Clothing for the Family.** Credit (3-2)
A study of the individual clothing needs of family members; wardrobe planning; socio-economic and psychological aspects of clothing; buying principles, procedures and practices.
- 201. Textiles.** Credit 5(3-4)
(Formerly Clothing 112.)
Textile fibers, their sources, characteristics and production into fabric, the social, economic and hygienic aspects and care of clothing.
- 202. Elementary Clothing Construction.** Credit 5(2-6)
(Formerly Clothing 113.)
Fundamental principles of clothing construction based on the use of the commercial pattern.
- 203. Pattern Study.** Credit 5(1-8)
(Formerly Clothing 114 and 132.)
A study of commercial patterns and probable variations in their design for garment construction. Partial drafting of a foundation garment from which an individual flat pattern is made. Prerequisite: Clothing 202.
- 204. Advanced Clothing Construction.** Credit 5(3-4)
(Formerly Clothing 122.)
A consideration of the clothing needs of family members with laboratory experiences to meet individual needs.
- 205. Historic Costume.** Credit 3(3-0)
(Formerly Clothing 131.)
The history of costume and its adaptation to our modern dress.
- 206. Costume Art.** Credit 3(1-4)
(Formerly Clothing 136.)
Application of art principles to the development of original designs in clothing and accessories. Prerequisites: Clothing 205 and Art 217, 111.
- 207. Introduction to Workroom Techniques.** Credit 3(2-2)
(Formerly Clothing 111.)
A study of the fundamental skills in the selection, care, and use of power machines, and the development of basic workroom techniques in the construction of simple garments.
- 208. Elementary Construction.** Credit 5(2-6)
(Formerly Clothing 115.)
A continuation of Clothing 207 with emphasis on the construction of more advanced garments.
- 301. Intermediate Construction.** Credit 5(2-6)
(Formerly Clothing 116.)
A continuation of Clothing 208 with variation in the fabrics and styles of garments constructed.
- 302. Drafting and Pattern Making.** Credit 5(2-6)
(Formerly Clothing 128 and 129.)
A study of the fundamentals of pattern making through the drafting of flat patterns to individual specifications.

- 303. Advanced Construction.** Credit 5(1-8)
(Formerly Clothing 138 and 139.)

The use of workroom techniques in custom tailoring using patterns drafted to individual specifications.

- 304. Alterations and Re-styling.** Credit 3(1-4)

A study of the techniques involved in: (1) altering ready-to-wear garments and (2) re-styling of outmoded garments to meet present day fashion.

- 305. Draping.** Credit 3(1-4)
(Formerly Clothing 133.)

Construction of dress forms to duplicate the student's figure; creating original garments by draping on the dress form and the human figure. Prerequisite: Clothing 206 or consent of instructor.

- 306. Millinery.** Credit 3(1-4)
(Formerly Clothing 134.)

An introduction to the use of various millinery equipment and materials.

- 307. Home Furnishings Laboratory.** Credit 5(2-6)
(Formerly Clothing 127.)

Laboratory experience in the making of slipcovers, draperies, and other fabric furnishings. Prerequisite: H. Ec. 305.

- 308. Tailoring for Women.** Credit 5(3-4)
(Formerly Clothing 137.)

A study of the principles of custom tailoring as they apply to women's coats and suits. Laboratory experiences in the construction of women's coats and suits. Prerequisite: Clothing 204.

- 401. Advanced Millinery.** Credit 5(1-8)

Design and execution of more difficult millinery problems. Prerequisite: Clothing 306.

- 402. Workroom Techniques in Clothing,
Textiles or Related Art.** Credit 10(5-10)

A course designed to give the student practical experiences in one of the areas of clothing, textiles or related art.

Advanced Undergraduate and Graduate

- 501. Special Problems in Clothing.** Credit 3-5 hours
(Formerly Clothing 140.)

Independent study on special problems in clothing, textiles or related art. (May be taken any quarter with the approval of a chosen instructor).

- 502. Fashion Coordination.** Credit 3(3-0)

A study of the factors which influence the fashion world; trends, designers, centers and promotion. Field trips to fashion centers.

- 503. Seminar in Clothing, Textiles and Related Art.** Credit 1(1-0)

A study of current trends in the field of Clothing, Textiles, and Related Art.

- 504. Economics of Clothing and Textiles.** Credit 3(3-0)

A study of the economic aspects of clothing and household textiles as they relate to family needs and resources in their quest for maximum satisfaction and serviceability.

- 505. Advanced Textiles.** Credit 3(3-0)
(Formerly Clothing 123.)

A study of the physical and chemical properties of textile fibers and fabrics with emphasis on recent scientific and technological developments.

COURSES IN FOODS AND NUTRITION**Undergraduate**

- 101. Family Foods.** Credit 4(3-2)
Principles of food preparation and nutrition; laboratory experiences in the selection, preparation, and serving of food to meet the nutritional needs of the family; role of diet in the maintenance of health and well being.
- 201. Nutrition and Dietetics.** Credit 5(3-4)
(Formerly F&N 123.)
The application of the scientific principles of nutrition to the planning of diets for various age groups. Prerequisites: Chem. 103, 104 or 109.
- 202. Food Preparation.** Credit 4(2-4)
(Formerly F&N 125.)
The application of scientific principles to food preparation and preservation. Prerequisites: Chem. 103 or 104.
- 203. Food Preparation** Credit 3(1-4)
Continuation of F. & N. 202.
- 204. Child Nutrition.** Credit 3(3-0)
(Formerly F&N 128.)
A study of the principles of nutrition and their application to the feeding of children in family and nursery school groups.
- 205. Diet Therapy.** Credit 5(3-4)
(Formerly F&N 129.)
A study of dietary modifications necessary in the treatment of pathologic conditions. Prerequisite: F&N 201.
- 206. Meal Planning and Table Service.** Credit 3(1-4)
(Formerly F&N 127.)
Planning of meals with consideration of the economic and nutritional needs of all family members. Laboratory experiences provide opportunity to develop skill in the judgment and use of the more recent food products and equipment as time, money, and energy-saving measures.
- 301. Nutrition Education.** Credit 3(2-2)
(Formerly F&N 131.)
A course designed to assist in the development of nutrition education programs in the school and community.
- 302. Experimental Cookery.** Credit 5(2-6)
(Formerly F&N 132.)
A study of the chemical and physical composition and behavior of foods.

Advanced Undergraduate and Graduate

- 501. Special Problems in Foods and Nutrition.** Credit 3(1-4)
(Formerly F&N 140.)
Individualized work on special problems in foods and nutrition.
- 502. Recent Developments in Foods and Nutrition.** Credit 2(2-0)
(Formerly F&N 130.)
A study of recent research in foods and nutrition through discussion of reports in current scientific journals.
- 503. Seminar in Foods and Nutrition.** Credit 1(1-0)
History of foods and nutrition; past and present theories and methods; specialists and their contributions; guest lecturers. (May be taken more than one quarter).

504. Advanced Nutrition.

Credit 4(4-0)

Advanced discussion of the roles of vitamins, minerals, protein, fat, and carbohydrate in the body and their interrelationships. Prerequisites: F&N 201. Chem. 551 and 552 or concurrent.

COURSES IN HOME ECONOMICS**Undergraduate****100. Introduction to Home Economics.**

Credit 2(2-0)

A course designed to assist students in making personal adjustments to college living; an introduction to the broad areas of home economics; a study of the home economics curricula and professional opportunities in the field.

101. The Individual and His Family.

Credit 3(3-0)

A study of the interrelationships of the individual and his family throughout the life cycle, with emphasis on health as it is related to the well-being of the family.

102. Social Usage.

Credit 2(2-0)

A course intended for the person who desires to enrich living with graciousness and accepted standards in our present day society.

201. Contemporary Housing.

Credit 4(3-2)

Consideration of the present day housing needs of the family. Laboratory experiences in the selection, use, and care of furnishings and equipment.

202. Child Development.

Credit 5(5-0)

(Formerly C. D. 133.)

A comprehensive study of the physical, social, emotional, personality and language development of the child from birth through early childhood.

203. Child Development.

Credit 3(3-0)

Continuation of Home Economics 202 with emphasis on the periods of middle childhood through adolescence.

204. Housing.

Credit 3(3-0)

(Formerly H. A. 134.)

Designed to acquaint the student with factors involved in home ownership. Class discussions of the legal aspects, financing, regulations governing ownership, site selection, and interpretation of blueprints.

301. Consumer Problems

Credit 3(3-0)

Basic principles involved in managing personal and family finance with emphasis on buying and consumption practices. Prerequisite: Ec. 310.

302. Marriage and Family Relations.

Credit 3(3-0)

A study of the interpersonal relationships in contemporary family life; emphasis on the changing nature of family adjustments, goals, values, and roles.

303. Household Equipment.

Credit 3(1-4)

The application of principles and techniques relating to selection, care, and use of household equipment.

304. Interior Design.

Credit 3(2-2)

A study of residential interiors with emphasis on color, design, style, furniture, lighting and accessories.

- 305. Home Furnishings.** Credit 3(2-2)
(Formerly Clothing 127.)

A study of the selection, arrangement, use and care of home furnishings.

- 306. Home Management Residence.** Credit 5(3-6)
(Formerly H. A. 143.)

Designed to give students experiences in applying the principles of management and interpersonal relations to group living.

- 401. Demonstration Techniques.** Credit 5(2-6)
(Formerly H. Ec. Ed. 141.)

The application of the principles of demonstration techniques to all phases of home economics.

- 402. Field Experience in Cooperative Extension Service.** Credit 10(5-10)
(Formerly H. Ec. Ed. 154.)

Experience in off-campus centers under the supervision of county Home Economics Agents. Prerequisite: Ed. 313.

Advanced Undergraduate and Graduate

- 501. Special Problems in Home Economics.** Credit 3(3-0)

Problems in the various areas of Home Economics may be chosen for individual study.

- 503. Seminar in Home Economics.** Credit 1(1-0)

Consideration of problems resulting from the impact of social change on the various fields of Home Economics. (May be taken any quarter).

COURSES IN INSTITUTION MANAGEMENT

Undergraduate

- 201. Institution Organization and Management.** Credit 5(5-0)
(Formerly I. M. 123.)

A study of the organization, management and administration of food service establishments.

- 301. Institution Purchasing.** Credit 5(4-3)
(Formerly I. M. 125.)

A study of the problems involved in the purchase of food and other expendable supplies for food service establishments.

- 302. Institution Equipment.** Credit 5(4-3)

A study of the selection, care and use of equipment for quantity food preparation and service. Interpretation of blueprints and specifications will be considered.

- 303. Quantity Cookery.** Credit 5(2-8)
(Formerly I. M. 121.)

The application of the principles of cookery to the preparation and service of food for group feeding. Prerequisite: F&N 202.

- 304. Advanced Quantity Cookery.** Credit 5(3-6)
(Formerly I. M. 122.)

Further experiences in the preparation of food with emphasis on menu planning, work schedules, cost and portion control for the varying types of food establishments.

305. **School Lunch.** Credit 3(3-0)
(Formerly I. M. 129.)

A study of the organization and administration of school lunch programs.

306. **Catering.** Credit 5(3-6)
(Formerly I. M. 127.)

Designed to improve skill and technique in the preparation of specialty dishes and in planning, preparing and serving for entertainments. Consideration will be given to the foreign influence on gourmet cookery. Prerequisite: F&N 202 or consent of instructor.

401. **Field Experience in Institution Management.** Credit 10(2-16)

Individualized experiences in off-campus food service establishments. (May be taken in the summer quarter).

Advanced Undergraduate and Graduate

501. **Special Problems in Institution Management.** Credit 3(3-0)
(Formerly I. M. 140.)

Individual work on special problems in institution management.

502. **Readings in Institution Management.** Credit 3(3-0)
(Formerly I. M. 142.)

A study of institution management through reports and discussion of articles in current trade periodicals and scientific journals.

503. **Seminar in Institution Management.** Credit 1(1-0)

Discussion of problems involved in the organization and management of specialized food service areas.

COURSES IN NURSERY SCHOOL AND KINDERGARTEN EDUCATION

Undergraduate

201. **Introduction to Nursery School and Kindergarten Education.** Credit 3(3-0)

Historical background and present-day philosophies of early childhood education. Relationships of children, teachers, parents and students.

202. **Play and Play Materials for the Young Child.** Credit 3(1-4)
(Formerly N. Sch. Ed. 131.)

Discussion of the importance of play in all aspects of child development. Experiences in developing creative art. Prerequisite: H. Ec. 202.

203. **Literature for the Young Child.** Credit 3(3-0)
(Formerly N. Sch. Ed. 132.)

A survey of prose and poetry for young children; criteria for the selection and age placement of stories. Experiences in creating original stories for young children are provided.

301. **Music in the Nursery School and Kindergarten.** Credit 3(3-0)
(Formerly N. Sch. Ed. 133.)

Acquisition of an initial repertoire of children's tunes; listening to songs and records for the young child and experiences for developing skill with the auto-harp and piano. Prerequisite: Music Theory 100.

- 302. Science in the Nursery School and Kindergarten.** Credit 3(1-4)
(Formerly N. Sch. Ed. 135.)

A resume of fundamental science concepts needed for the teachers' own background; study of science situations most frequently of concern to young children; specific practice in handling and initiating such situations.

- 401. Kindergarten and Nursery School Methods.** Credit 5(5-0)
(Formerly N. Sch. Ed. 141.)

Methods and materials in daily and long-range curriculum development to meet the needs of nursery school and kindergarten children.

- 402. Directed Teaching in the Nursery School.** Credit 5(1-8)
(Formerly N. Sch. Ed. 142.)

Observations and guided teaching experiences in the nursery school. Students will have an opportunity to work in all aspects of the curriculum in local schools as well as our campus laboratory center.

- 403. Directed Teaching in the Kindergarten.** Credit 5(1-8)
(Formerly N. Sch. Ed. 142.)

Observations and guided teaching experiences in the kindergarten. Students will have an opportunity to work in all aspects of the curriculum in local schools as well as our campus laboratory center.

Advanced Undergraduate and Graduate

- 501. Special Problems in Nursery School
and Kindergarten Education.** Credit 3-5 hours.
(Formerly N. Sch. Ed. Ed. 138.)

Individual work on special problems in Nursery School and Kindergarten Education.

- 503. Seminar in Nursery School and
Kindergarten Education.** Credit 1(1-0)

A review of research and its influence on the educational policies of nursery schools and kindergartens.

**SCHOOL OF EDUCATION
AND GENERAL STUDIES**



Department of Education and Psychology

Department of English

Department of Foreign Languages

Department of Music

Department of Health and Physical Education

Department of Social Sciences

SCHOOL OF EDUCATION AND GENERAL STUDIES

LEONARD H. ROBINSON, *Dean*

The School of Education and General Studies extends to the students opportunities to prepare for teaching careers in the secondary schools of the State and the Nation and for several other vocational and professional pursuits. The various courses of study are structured so that the student may attain competence in both specialized and general areas of Education. The School aims at developing in the student not only the knowledge and skills that will make for successful vocational endeavor, but those understandings and appreciations that will enable him to live with assurance among educated people.

The School of Education and General Studies comprises the following departments: Education and Psychology, English, Foreign Languages, Music, Physical Education, and Social Science.

Curricular Offerings and Degrees: Upon the satisfactory completion of one of the undergraduate curricula in the School of Education and General Studies the student is eligible to receive the degree of Bachelor of Science with a major in the following areas: Economics, English, French, Music Education, Physical Education, History, Social Studies, and Sociology.

GRADUATE REQUIREMENTS

A minimum of 200 credit hours and 400 grade points is required for graduation.

In addition to majors and minors, each candidate for graduation will be required to meet the following distribution of requirements, both as to subjects and hours.

1. English; 18 hours. (Includes Composition; 15 hours and Fundamentals of Speech; 3 hours.)
2. Foreign Language; 10 hours. (French, German, or Spanish) for students who present two admission units of high school credit in the same language. Others take the beginning courses; 15 hours.
3. Health Education. (3 hours).
4. Humanities; 12 hours (201, 202, 203, 204). Each course carries 3 hours credit.
5. Mathematics; 10 hours.
6. Orientation.
7. Physical Education Activity Courses, 6 quarters. (6 hours).
8. Psychology 201; 5 hours.
9. ROTC, 6 quarters. (9 hours). Required for male students.
10. Science Survey; 15 hours (includes Biological Science; 5 hours, and Physical Science; 10 hours.)
11. Social Science Survey; 9 hours (includes World Civilization and Cultures, Man and His Social Institutions, and Contemporary Social, Economic and Political Problems. Each course carries 3 hours credit.
12. The completion of a major course of study that shall consist of a minimum of 45 quarter hours.
13. Students interested in teaching careers must apply for admission to the teacher-education program through their respective academic departments.
14. In order to qualify for certification as a teacher, the student must complete the program in teacher-education, including student teaching.

SAMPLE SCHEDULE

The following are typical examples of how normal schedules might be arranged. Others more in accord with the student's interest and aptitudes might be selected:

Freshman Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Biological Science 101	5	—	—
Education 101	0	—	—
English 101, 102, 103	5	5	5
Health Education (Women) 111	—	—	3
Humanities 201	—	—	3
Mathematics 111, 112	5	5	—
Phy. Ed. (Men) 101, 103, 111 or 131	1	1	1
Phy. Ed. (Women) 102, 104, 106	1	1	1
Physical Science 101, 102	—	5	5
ROTC (Men) 101, 102, 103	1	1	1
Social Science 101, 102, 103	3	3	3
	19-20	19-21	18-20

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 210	3	—	—
Foreign Language—French, German, or Spanish 101, 102, 103	5	5	5
(For sophomores with no foreign language in high school)			
or			
French, German or Spanish 201, 202	5	5	—
(For sophomores completing two units of the same foreign language in high school)			
Health Education (Men) 111	—	3	—
Humanities 202, 203, 204	3	3	3
Phy. Ed. (Men) 201 or 203, 205, 211 or 233 ..	1	1	1
Phy. Ed. (Women) 202, 212, 222	1	1	1
Psychology 201	—	5	—
ROTC (Men) 201, 202, 203	2	2	2
Electives*	5	5	8
	19	19	19

ELECTIVES

In addition to minimum distribution requirements, and a major and a minor, which are required, each student is permitted to elect such additional courses as will be necessary to satisfy the graduation requirements. In so doing he is urged to exercise the greatest care in order that his choice may add further to the integration and coordination of his program. All such electives must be selected with the approval of the student's adviser.

The elective work may be taken in any of the departments indicated approval of the Dean of the School of Education and General Studies.

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

CHARLES L. HAYES, *Chairman*

The Department of Education and Psychology has two responsibilities in the educational program of the College. First, in the collaboration with the various academic departments, it provides a program in the education of secondary school teachers. Second, the department provides a program of a minor in psychology.

The Program of Teacher Education

The program of teacher education seeks to improve the quality of education available to the youth of North Carolina through improved preparation of teachers and other school personnel including administrators, guidance counselors and supervisors. To that end, it offers both undergraduate and graduate programs of professional study which represent a continuum with similar objectives. The program seeks therefore to:

- (1) Prepare young people to take their places as competent members of the profession of education; and
- (2) Provide opportunities for advanced study for school personnel already established in education.

The Department of Education and Psychology is the central agency vested with the authority and responsibility to certify to the State Department of Public Instruction students who are to be recommended by the Institution for certification in the following fields:

- | | |
|---------------------------|------------------------------|
| 1. Agricultural Education | 9. Home Economics Education |
| 2. Art | 10. Industrial Education |
| 3. Biology | 11. Mathematics |
| 4. Business Education | 12. Music |
| 5. Chemistry | 13. Nursery School Education |
| 6. English | 14. Physical Education |
| 7. Foreign Languages | 15. Physics |
| 8. History | 16. Social Sciences |

In recognition of this function, the approval or endorsement of the department providing courses in the subject matter areas in which the candidate is to be certified must be secured prior to the approval or endorsement of this department. The College reserves the right to refuse to recommend applicants for certificates when they are deficient in mental or physical health, scholarship, character, or other qualifications deemed necessary for success in the profession of education.

The program in teacher education is divided into three separate but inter-related phases: (1) general education; (2) subject-matter or certification specialization; and (3) professional education.

General Education

The general education phase of the Teacher Education Program functions to provide experience and learning which meet the fundamental needs of all teachers, both in the role of teacher and as a citizen in a democracy. general education provides for the student the understandings, the knowledge, the appreciation, and the sensitivity attainable through the study of a broad range of materials and concepts ranging across the humanities, the arts, the social sciences, the natural sciences and mathematics. It provides a broad understanding of the cultural heritage and of the physical and social environments.

General education constitutes 40 per cent of the four-year Teacher Education Program. It is recommended that the student complete the general education requirements by the end of the sophomore year.

The specific purposes of the program in general education are to

1. Develop competency in the ability to read, write, and speak the English language clearly and effectively.
2. Develop a critical understanding of and a sensitivity to the aesthetic, philosophical, ethical, and imaginative values expressed in literature, art, music, religion, and philosophy.
3. Develop an understanding of the development of world civilization and understanding of the basic concepts of the social studies, and an understanding of democracy as a way of life.
4. Develop an appreciation and understanding of the structure of science, of scientific inquiry, and of the main scientific principles.
5. Develop an appreciation and understanding of the structure and applications of mathematics.
6. Develop the knowledge, habits, and attitudes necessary to achieve and maintain sound physical and mental health.

PROFESSIONAL EDUCATION

The professional education phase of the program in teacher education is designed to discover the prospective teacher of promise and to develop the competencies necessary for beginning teachers at the secondary level.

Approximately twenty per cent of the undergraduate curriculum is devoted to professional education. This phase is designed to achieve the following objectives:

1. To develop understanding of human growth and development with special emphasis on the adolescence years.
2. To develop understanding of the nature of learning, how it takes place, and some factors which may enhance or inhibit its progress.
3. To develop understanding of materials and methods as they relate to learning in the student's area of specialization.
4. To develop skills necessary for wise use of materials, methods and resources applicable to instruction in the student's area of specialization.
5. To develop understanding of the purposes, organization and administration of the school system, with special emphasis on the role of the secondary teacher in the total program.
6. To develop understanding of the social, historical and philosophical foundations undergirding the American pattern of education.
7. To develop a knowledge of the total instructional process through direct observation and participation in teaching under strict supervision.
8. To develop the skills necessary for the manipulation of materials and methods and the guidance of the learning process through direct observation and practice of teaching under strict and constructive supervision.

Suggested Sequence in Professional Education

Sophomore Year			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 201	—	3	—
Psychology 201, 203	—	5	3
	—	8	3

Junior Year			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 202	3	—	—
Guidance 501	—	—	3
Psychology 301, 302	—	3	3
	3	3	6

Senior Year			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
*Education 301, 304-313, 402	3-18	3-18	3-18

THE MINOR IN PSYCHOLOGY

In addition to its program in teacher education, the Department offers a minor in psychology open to all students who have completed the freshman and sophomore or general education requirements. The minor in psychology requires the completion of 32 quarter hours in addition to Psychology 201, General Psychology.

Suggested Sequence for Psychology Minor

Junior			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Psychology 202 or 203	3	—	—
Psychology 303, 304	—	5	5
	3	5	5

Senior Year			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Psychology 301, 302	3	3	—
Psychology 401, 501, 402 or 403	5	3	5
	8	6	5

*Professional Block

TEACHER EDUCATION ADMISSION AND RETENTION STANDARDS**Admission**

To be admitted to the Teacher Education Program, a student must commit himself during the third quarter of residence. The commitment will be made with the academic department in which he plans to major. For continuation in the Teacher Education Program, a student must have completed or be in the sixth quarter of completing the General Education Program with a grade point average of 2.00 and a major field average of 2.00 before final approval to the Teacher Education Program can be granted. In addition, a student must repeat any required major field course including Education and Psychology in which he receives a grade of D if the course is prerequisite for taking a course that normally follows. The repetition will not be considered in the hours required for graduation but the hours and the grade for the repetition will be included in the determination of the overall grade point average.

Retention

To remain in the teacher education program the student must:

1. Maintain scholarship standards in the areas in which he seeks certification and in professional education.
2. Complete prerequisite courses in areas of certification and in professional courses prior to or concurrent with the quarter of student teaching.
3. Have evidence of freedom from communicable diseases and such other mental (including emotional) and physical conditions, the possession of which would impair the ability to effectively perform the duties of a student teacher or a beginning teacher.

COURSES IN EDUCATION

101. Orientation. Credit 0(1-0)

A familiarization with methods of improving study, taking notes, and using the library. Each quarter of the Freshman year.

201. Introduction to the Study of Education. Credit (3-0)

An overview of the historical background of the systems of education in the United States, their aims, organization and procedures, and of the principles and practices on all levels of the American educational system. Consideration given to qualifications for teaching with emphasis on the requirements of North Carolina.

202. Philosophy of Education. Credit 3(3-0)

A view of the educative process and its philosophical foundations; emphasis on the philosophical implications of education as they relate to the pupil, curriculum, teacher, and the institution. Prerequisite: Education 201.

203. Utilization of Audio-Visual Media. Credit 3(2-2)

A consideration of the improvement of instruction and communications through the use of audio-visual media; includes the study of the general practices, and utilization, selection, production, and evaluation of audio-visual media for teaching-learning or other informal education situations.

204. Audio-Visual Materials Production. Credit 3(0-6)

The development and application of basic skills in the principles of production of graphic materials as media of communications. For prospective teachers and all students who desire to acquire a basic knowledge and understanding of communications as media.

301. Principles of Secondary Education. Credit 3(3-0)

The history, nature and function of the secondary school and its relationship to the elementary school and adult life. Prerequisite: 15 quarter hours in Education and Psychology.

302. Public School Music Methods. Credit 3(3-0)

A comprehensive study of materials and methods in the teaching of public school music. Fall.

303. Vocal Methods and Materials. Credit 5(5-0)

The teaching of vocal music in the public schools; vocal literature for vocal combinations in the public schools.

304. The Teaching of Physical Education. Credit 3(2-2)

A study of materials, methods, and practice in planning, organizing, and conducting physical education class activities. Prerequisites: 239 and an adequate number of other physical education courses.

305. Methods of Teaching English. Credit 5(5-0)

A study of materials and methods of teaching English in the high school. Required of those planning to teach English. Prerequisites: English 202, 225, 35 additional hours of English courses above English 103, and 18 quarter hours in Education and Psychology.

306. Band Methods. Credit 5(5-0)

A study of school band organization and administration. Winter.

307. Methods of Teaching Social Sciences. Credit 5(5-0)

A study of techniques of social science instruction on the high school level. Required of those planning to teach the subject. Prerequisites: 40 hours of Social Studies and 18 quarter hours in Education and Psychology.

308. Methods of Teaching Mathematics. Credit 5(5-0)

An evaluation of subject matter, materials, methods and techniques, and objectives in the teaching of mathematics in the junior and senior high school. Required of those planning to teach the subject. Prerequisites: 30 hours of Mathematics and 18 hours of Education and Psychology.

309. Methods of Teaching Foreign Languages. Credit 5(5-0)

A study of the problems and difficulties experienced in teaching foreign languages. Special attention given to the matter of classroom aids, equipment, etc. Required of those students planning to teach the subject. Prerequisites: 40 hours of French and 18 quarter hours of Education and Psychology.

310. Methods of Teaching Art. Credit 5(5-0)

A study of the aims, objectives, methods and techniques of art teaching in the modern schools. Special attention given to planning courses of study, presentation, selection of equipment, reference and illustrative material and correlation. Required of those wishing to qualify as art teachers. Prerequisites: 45 hours of Art and 18 hours of Education and Psychology.

311. Methods of Teaching Science. Credit 5(5-0)

A study of methods, materials, and techniques of teaching such subjects as biology, chemistry, physics, and general science in the high school. Required of all those planning to teach in this field. Prerequisites: 40 hours of Science and 18 quarter hours of Education and Psychology.

312. Methods of Teaching Home Economics. Credit 5(5-0)

A course designed to acquaint the student with home and family life education in the elementary and secondary schools. Prerequisite: A 2.0 grade point average in major courses and a 2.0 grade point average in Education and Psychology courses.

313. Principles of Extension Education. Credit 3(3-0)

Background, development, and organization of the agricultural and home economics extension services; principles underlying extension education; program building and techniques of teaching.

314. Driver Education and Traffic Safety. Credit 3(2-3)

This course is designed to train students who may wish to teach driver education in the public schools. Emphasis will be placed on the objective and scope of driver education, traffic laws, preventive maintenance, skill developing exercises and aids to teaching.

401. Methods of Research and Evaluation in Health and Physical Education. (Formerly 250).

Credit 3(2-2)

The purposes of this course are twofold: (1) to develop some competency in the use of various research methods as applied to health education and physical education, and (2) to study the methods of evaluating biological, social and physiological outcomes for health education and physical education. Elementary statistical procedures are utilized when applicable.

402. Observation and Student Teaching.

Credit 10(2-16)

The application and practice of methods, techniques, and materials of instruction in a real classroom situation under supervision, includes purposeful observation; organization of teaching materials; participation in other activities which will aid in developing a teacher (guidance activities, child accounting, co-curricular activities, parent-teacher associations, teachers meetings, and ninety or more clock hours of actual teaching. Prerequisites: overall G.P.A. of 2.00, G.P.A. of 2.00 in both the professional sequence and the academic sequences major and minor areas of specialization and Ed. 301, Principles of Secondary Education and Ed. 304-313, Methods of Teaching . . . completed or taken concurrently.

403. Driver Education and Teacher Training.

Credit 3(2-3)

This course provides the student with the necessary preparation to organize and administer the high school driver education program. Special emphasis will be given to methods and resources; scheduling and evaluation. Laboratory experience will be provided on the dual control automobile.

Advanced Undergraduate and Graduate**504. Materials and Methods in Teaching Reading.**

Credit 3(3-0)

This course deals with the application of principles of learning and child development to the teaching of reading and the related language arts.

505. Introduction to Adult Education.

Credit 3(3-0)

The history, philosophy, and general organization and administrative problems of adult education. Prerequisite: Psychology 301. Fall and Spring.

506. Methods in Adult Education.

Credit 3(2-2)

Methods of informal instruction, group leadership, conference planning, and techniques in handling various issues of interest to adults. For persons preparing to conduct adult education programs as well as those preparing to serve as instructors or leaders in the public schools and/or in various agencies serving adults. Prerequisite: Education 505. Winter.

507. Principles of School Law.

Credit 3(3-0)

The study of statutes and judicial decisions of North Carolina affecting public school education. Legal authority, powers, and liabilities of school personnel, legal control and limitations of school finance, curriculum, and property.

510. Library Usage for Classroom Teachers.

Credit 3(2-2)

A consideration of the study, collection, organization and graduation of instructional materials for educational materials centers at all grade levels; also includes methods and techniques for library usage for pupils and teachers, central library organization, library requisition practices and library-classroom coordination of the instructional program. For pre-service and in-service teachers.

COURSES IN PSYCHOLOGY**Undergraduate****201. General Psychology. Credit 5(5-0)**

An introduction to the scope, content, sources of data, and principles of psychology. While this course will not be counted to meet the specific requirements in education for a high school teacher's certificate, it is a prerequisite for other courses in psychology.

202. Child Psychology. Credit 3(2-2)

A study of the elaboration of behavior from conception to puberty in such a way as to discover the principles underlying the wholesome development of children. Prerequisite: Psychology 201.

203. Adolescent Psychology. Credit 3(3-0)

A study of behavior during the culturally produced transition period between childhood and adulthood. Prerequisite: Psychology 201.

301. Educational Psychology. Credit 3(3-0)

A study of basic problems underlying the psychology of education; individual differences, development of personality, motivation of learning and development, nature of learning and procedures which best promote its efficiency. Prerequisite: Psychology 202 or 203.

302. Tests and Measurements. Credit 3(2-2)

A basic study of standardized and teacher-made measuring devices, acceptable methods of selecting, administering, and interpreting all types of tests applicable to the school and classroom. Prerequisite: Psy. 301.

303. Social Psychology. Credit 5(5-0)

The social application of psychology; social stimulation and response; formation of attitudes involved in cooperation-completion, leadership-submission, frustration-aggression, crowd and mob phenomena. Prerequisites: Psychology 201 and Sociology 231. Winter.

304. Mental Hygiene. Credit 5(5-0)

A study of basic principles of adjustment and mental hygiene, varieties of adjustment, personality development, and psychotherapy in theory and in practice. Prerequisite: Psychology 201. Spring.

401. Introductory Experimental Psychology. Credit 5(3-4)

An introductory study of scientific methodology in psychology; experiments in learning, the measurement of specific aptitudes, the measurement of personality, and the techniques of vocational diagnosis. Prerequisite: Psychology 201. Fall.

402. Applied Psychology. Credit 5(5-0)

The utilization of psychological principles in five areas of American culture; effectively training new generations; maintaining mental health; administering justice; promoting economic progress; and, facilitating efficient production. Prerequisite: Psychology 201. Spring quarter, odd-numbered years.

403. Industrial Psychology. Credit 5(5-0)

A consideration of the significance of individual differences in industry; employee selection and training; reduction of monotony and fatigue and the promotion of efficiency; accident prevention; psychological factors in employee turnover. Prerequisite: Psychology 201. Spring quarter, even-numbered years.

Advanced Undergraduate and Graduate**501. Theory of personality Development and Adjustment. Credit 3(3-0)**

A course devoted to discussion of structural theories of personality and major theories of personality development from biological, cultural, and social points of view.

Graduate

These courses are open only to graduate students. For descriptions of them, see the *Graduate School Bulletin*.

617. Mental Hygiene for Teachers. Credit 3(3-0)**621. Educational Psychology. Credit 3(3-0)****622. Measurement and Evaluation. Credit 3(2-2)****SPECIAL EDUCATION****Advanced Undergraduate and Graduate****501. Introduction to Exceptional Children. Credit 3(3-0)**

An over-view of the educational needs of exceptional or "different" children in the regular classroom situation; emphasis placed on classroom techniques known to be most helpful to children having hearing losses, speech disorders, visual problems, emotional, social handicaps and intelligence deviation, including slow-learners and gifted children. An introduction to the area of special education. Designed for classroom teachers.

502. Psychology of the Exceptional Child. Credit 3(3-0)

An analysis of psychological factors affecting identification and development of mentally retarded children, physically handicapped children, and emotionally or socially maladjusted children.

503. Teaching the Slower Learner in the Regular Classroom. Credit 3(2-0)

A study of materials and methods for adjusting instruction in arithmetic spelling, language, reading to the slower learning child in heterogeneous classes. Consideration given to discussion and study in the unit and activity program and the drill and skill program in relation to it.

504. Measurement and Evaluation in Special Education. Credit 3(2-2)

The selection, administration, and interpretation of individual tests; intensive study of problems in testing exceptional and extremely deviate children; consideration to measurement and evaluation of children that are mentally, physically, and emotionally or socially handicapped. Emphasis upon the selection and use of group tests of intelligence and the interpretation of their results.

505. Mental Deficiency. Credit 3(3-0)

A survey of types and characteristics of mental defectives; classification and diagnosis; criteria for institutional placement and social control of mental deficiency. Prerequisites; Special Education 501 and 502.

506. Materials, Methods, and Problems in Teaching Mentally Retarded Children. Credit 5(2-6)

Basic organization of programs for the education of the mentally retarded; classification and testing of mental defectives; curriculum development and principles of teaching intellectually slow children. Attention is also given to the provision of opportunities for observing and working with children who have been classified as mentally retarded. Prerequisites: 15 quarter hours in special education.

EDUCATION COURSES**Graduate**

These courses are open only to graduate students. For descriptions of them, see the *Graduate School Bulletin*.

601. Theory of American Public Education.	Credit 3(3-0)
604. Introduction to Graduate Study.	Credit 3(3-0)
605. Principles of Teaching.	Credit 3(3-0)
606. Curriculum in the Elementary School	Credit 3(3-0)
607. History of American Education.	Credit 3(3-0)
608. Philosophy of Education.	Credit 3(3-0)
609. School Planning.	Credit 3(3-0)
610. Curriculum in the Secondary School	Credit 3(3-0)
611. Audio-Visual Aids Programs.	Credit 3(3-0)
612. Methods and Techniques of Research.	Credit 3(3-0)
613. Organization of Audio-Visual Programs	Credit 3(3-0)
614. Workshop in Audio-Visual Aids	Credit 3(3-0)
615. Problems and Trends in Teaching Social Sciences.	Credit 3(3-0)
616. Problems and Trends in Teaching Science.	Credit 3(3-0)
618. Childhood Education.	Credit 3(3-0)
619. School Publicity and Public Relations.	Credit 3(3-0)
623. Educational Sociology.	Credit 3(3-0)
624. Administration of the Elementary School	Credit 3(3-0)
625. Supervision of Student Teachers	Credit (3-0)
626. High School Administration.	Credit 3(3-0)
627. High School Supervision.	Credit 3(3-0)
628. Introduction to Adult Education.	Credit 3(3-0)
629. Methods in Adult Education. (Formerly 628b)	Credit 3(3-0)
630. Pupil Personnel Administration. (Formerly 629)	Credit 3(3-0)
631. Educational Statistics.	Credit 3(3-0)
632. Seminar in Educational Problems.	Credit 3(3-0)
633. The Community College and Post-secondary Education	Credit 3(3-0)
634. Principles of College Teaching.	Credit (3-0)
635. Supervision of Student Teachers.	Credit (3-0)
639. Issues in Elementary Education. (Formerly 639E)	Credit 3(3-0)
640. Issues in Secondary Education. (Formerly 639S)	Credit 3(3-0)
641. Current Research in Elementary Education. (Formerly 640E)	Credit 3(3-0)
642. Current Research in Secondary Education. (Formerly 640S)	Credit 3(3-0)
643. Workshop in Methods of Teaching Arithmetic	Credit 3(0-6)
644. Workshop in Methods of Teaching Language Arts	Credit 3(0-6)
699. Thesis Research	Credit (3-5)

COURSES IN GUIDANCE**Advanced Undergraduate and Graduate**

501. Introduction to Guidance. Credit 3(3-0)
(Formerly Education 233)

A foundation course for prospective teachers, part-time or full-time counselors who plan to do further work in the field of guidance or of education. Special consideration will be given to the nature, scope, and principles of guidance services.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

602. Measurement for Guidance. Credit 3(3-0)
603. Techniques of Individual Analysis. Credit 3(3-0)
604. Educational and Occupational Information. Credit 3(3-0)
605. Introduction to Counseling. Credit 3(3-0)
606. Case Studies in Counseling. Credit 3(3-0)
607. Guidance Practicum. Credit 5(2-6)
608. Organization and Administration of Guidance Services Credit 3(3-0)

PSYCHOLOGY COURSES**Graduate**

These courses are open only to graduate students. For descriptions of them, see the *Graduate School Bulletin*.

617. Mental Hygiene Credit 3(3-0)
618. Child Growth and Development Credit 3(3-0)
621. Educational Psychology Credit 3(3-0)
622. Measurement and Evaluation Credit 3(2-2)

DEPARTMENT OF ENGLISH

DARWIN T. TURNER, *Chairman*

The English Department assumes three responsibilities in the educational program of the institution. First, by means of composition courses, introductory literature courses, and laboratory courses, the department attempts to develop among the students the language skills required for intelligent communication. Second, the department provides the necessary information and training for prospective teachers of English. Third, the department offers the English majors a foundation of information and of knowledge of techniques which will enable them to pursue graduate study effectively.

COLLEGE REQUIREMENTS

All entering freshmen and transfer students who have not received credit for Freshman English are required to take a proficiency test in English. Those who do not pass this test must enroll in Preparatory English (English 100).

All students of the college must complete English 101, 102, and 103.

THE MAJOR IN ENGLISH

The English Department offers two major programs. One is intended for the student who plans to pursue English in graduate school immediately after completing his undergraduate studies or who wishes to use a major in English as a foundation for a career in a profession other than teaching. The curriculum and the experience are intended to furnish the skills in communication, the exactness of thought, and the cultural background essential to the educated man. Consequently, the English major has a foundation which should enable him to pursue graduate study in English, library service, education, journalism, drama, speech, history, foreign languages, law, philosophy, and related areas. He has a background also which equips him to occupy a position—in industry or in business—which demands a person who can read, think, and express himself intelligently.

The second program is designed to provide the student with the skills and knowledge essential to teaching in the junior or senior high school. The teaching program qualifies a student for certification as a high school teacher of English in North Carolina.

Requirements: The following courses are required for a major in English: English 202 (5), 205 (3), 210 (3), 225 (3), 320 (5), 321 (5), 330 (5), 331 (5), 332 (5), 335 (3), 340 or 341 (3), 401 or 201 (3), 430 or 540 (3), 440 (5), 450 (0).

In addition, each English major is expected to become an active participant in at least one of the following organizations: the Fortnightly Club, the Kappa Phi Kappa Forensic Society, the Richard B. Harrison Players, the *Register*, the Stylus, the Speakers' Bureau, the Speech Choir. As a junior or senior, the major serves for two quarters as an assistant to one of the instructors in the English Department. During the Spring Quarter of the junior year, the major takes a comprehensive examination in the field of English. One section will be an examination on the reading list presented to the major during his sophomore year. Those failing the examination are required to prepare for a second examination. During the senior year, each major will enroll in English 450 (Seminar), which meets one hour per week for no credit.

Certification requirements: To qualify for a teaching certificate, the student must complete the following courses: Education 201, 202, 301, 305, 402; Psychology 201, 203, 301, Psychology 302.

Students majoring in English are urged to follow the recommended schedule as closely as possible. Although the courses in English above 103 may be pursued in a different sequence, the student following the schedule will find that each course prepares him for the next.

Suggested Program for English Majors

Teaching Major

Freshman Year

Freshman program for School of Education and General Studies

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 201	3	—	—
English 225, 202, 205	3	5	3
English 210	3	—	—
Foreign Language 101, 102, 103	5	5	5
Humanities 202, 203, 204	3	3	3
Physical Education	1	1	1
Psychology 201	—	5	—
ROTC (Men) 201, 202, 203	2	2	2
Electives	—	—	5-8
	18-20	19-21	19-20

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 202	—	—	3
English 335, 321, 331	3	5	5
English 320, 330, 201 or 401	5	5	3
Psychology 203, 301, 302	3	3	3
Minor	8	6	5
	19	19	19

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 332, 430	5	3	—
English 440, 340 or 341	—	0	—
English 450	—	0	—
Teacher Certification Program, Minor and Electives	9	13	10
	19	19	10

Recommended elective in studies other than language and literature:
History 332

Non-teaching Major**Freshman and Sophomore Years**

The student will follow the same program as for the Teaching Major.

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 202	—	—	3
English 335, 321, 331	3	5	5
English 320, 330, 201 or 401	5	5	5
Minor and Electives	8	6	5
	16	16	18

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 332, 430	5	3	—
English 440, 340 or 341	5	3	—
English 450	—	0	—
Minor and Electives	9	13	19
	19	19	19

Recommended electives: Eng. 301, 211, 312, 313, and Sociology 231, History 332.

THE MINOR IN ENGLISH

Because most students who study in a minor field hope to be able to teach in that field if they should be unable to secure a job in their primary interest, the minor program is intended to furnish the student with a minimum foundation for the teaching of English in the junior or senior high school.

Course Requirements: English 202 (5), 210 (3), 225 (3), 321 (5), 330 (5), 331 (5), 201 (3), 332 (5), 440 (5), 450 (0).

As a junior or senior, the minor serves for two quarters as an assistant to one of the instructors of the Department of English.

Suggested Sequence for Minor

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 225, 202, 210	3	5	3
	<hr/> 3	<hr/> 5	<hr/> 3

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 321, 331	—	5	5
English 330, 201	—	5	3
	<hr/> —	<hr/> 10	<hr/> 8

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 332, 450	5	0	—
English 440	5	—	—
	<hr/> 10	<hr/> 0	<hr/> —

THE MINOR IN SPEECH AND DRAMA

Course Requirements: English 202 (5), 210 (3), 315 (3), 340 (3), 341 (3), 410 (3), 411 (3), and 9 hours of electives in speech and drama courses. If a student minoring in Speech and Drama is required to pursue certain courses as an English major, he must elect substitutes to bring his hours up to 30 in speech and drama. Other requirements are the same as for the minor in English.

Suggested Sequence for Minor

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 210, 202	3	5	—
	<hr/> 3	<hr/> 5	<hr/> —

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 315, 340, 341	3	3	3
Elective	—	—	3
	<hr/> 3	<hr/> 3	<hr/> 6

<i>Course and No.</i>	Senior Year		
	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 410, 411	3	3	—
Electives	3	3	—
	6	6	—

COURSES IN ENGLISH

Undergraduate

Freshman Composition and Developmental Reading

100. **Preparatory English.** Credit 0(3-0)
(Formerly English 211.)

A course designed to meet the needs of students whose scores on the placement test in English are below the average required by the College. Review of grammar leads to paragraph writing. Instruction is provided in developmental reading.

101. **Freshman Composition I.** Credit 5(5-0)
(Formerly English 211.)

An introduction to oral and written communication; provides the student with experience in writing short compositions, outlining written material, and improving his reading skills.

102. **Freshman Composition II.** Credit 5(5-0)
(Formerly English 212.)

A continuation of 101 in which the student is provided with additional experience in expository and descriptive composition and the techniques of investigative writing. Prerequisite: English 101.

103. **Freshman Composition III.** Credit 5(5-0)
(Formerly English 213.)

A continuation of 102 in which the student is provided with more intensive instruction in argumentative writing and narrative composition. Prerequisites: 101 and 102.

105. **Developmental Reading.** Credit 1(2-1)
(Formerly English 216.)

Instruction and practice in methods of increasing rate of reading and techniques of comprehending written material; emphasis upon vocabulary study. Required of freshmen who score at the specified levels on the reading placement test.

Completion of English 101, 102, and 103 is a prerequisite for the following courses.

Language and Composition

201. **Advanced Composition.** Credit 3(3-0)
(Formerly English 244.)

A study of techniques of narrative, descriptive, expository, and argumentative composition.

202. **Advanced English Grammar and Composition.** Credit 5(5-0)
(Formerly English 237.)

Required for English majors and minors at the beginning of the sophomore or the junior year.

An intensive study of grammar and composition intended to equip the student with the knowledge of grammar essential to teaching English in the junior or senior high school and with additional training in the composition skills to enable him to express himself more effectively.

- 205. Introduction to the History of the English Language.** Credit 3(3-0)
(Formerly English 247.)

A course designed to develop the student's understanding of modern English syntax, vocabulary, etymology, spelling, pronunciation, and usage and to increase the student's comprehension of English literature of previous centuries through a study of the history of the language.

- 301. Journalism.** Credit 3(2-2)
(Formerly English 231.)

Theoretical and practical work in gathering, organizing, and writing news; primary attention to the development of journalistic technique; drill on the fundamental principles of composition.

- 401. Literary Research.** Credit 3(3-0)
(Formerly English 246.)

Advanced study in the tools and techniques of literary research and investigation; open only to seniors and to juniors with the approval of the department head.

Speech and Dramatic Arts

- 210. Voice and Speech Fundamentals.** Credit 3(3-1)
(Formerly English 224.)

A study of the fundamental processes essential to effective speech; tests and recordings to discover voice and speech defects; projects, exercises, and drills to develop skill in a variety of speech situations. Laboratory hours arranged for individual students on Tuesday or Thursday between 9 a.m. and noon and between 1 p.m. and 3 p.m. This course is a prerequisite for all other courses in speech.

- 211. Public Speaking.** Credit 3(3-0)
(Formerly English 225.)

A study of the methods by which public speeches are made clear, interesting, and forceful; practice in writing and delivering speeches according to the occasion. Prerequisite: English 210.

- 215. Theatre Practice.** Credit 1(0-2)

Practical experience in staging and setting up technical designs. Backstage work in costume, makeup, stagecraft, lighting, etc., is required.

- 312. Argumentation and Debate.** Credit 3(3-0)
(Formerly English 236.)

Study and practice in analysis, gathering of material, briefing, ordering of arguments and evidence, refutation, and delivery. Prerequisite: English 210.

- 313. Parliamentary Procedure.** Credit 1(1-0)
(Formerly English 229.)

Theory and practice in the rules and customs governing organization and proceedings of deliberative bodies. Prerequisite: English 103.

- 315. Elements of Play Production.** Credit 3(3-0)

Study of basic principles in all aspects of production and application of these principles to particular situations. Affords opportunities for practical experience in acting, directing, lighting, scenery design, and construction. Prerequisite: English 210.

- 317. Oral Reading and Interpretation.** Credit 3(2-2)

Study of methods of effective oral presentation of literature. Consideration of quality, pitch, time, and intensity as tools for the effective interpretation of poetry, drama, etc. Continuous work in oral reading. Prerequisite: English 210 and Humanities 201.

340. Survey of Drama I. Credit 3(3-0)

A survey course in the history, literature, criticism, and arts of the theatre to the nineteenth century.

341. Survey of Drama II. Credit 3(3-0)

A continuation of 340, from the nineteenth century to the present.

410. Phonetics. (Advanced Speech) Credit 3(3-0)

The study of general American phonetics and its importance in speech correction. Prerequisite. English 210.

411. Introduction to Speech Correction. Credit 3(3-0)

A study of the causes, symptoms, and treatment of minor speech disorders. Observation and practice in clinical techniques. Prerequisite: English 210, Psychology 201, English 410, and consent of the instructor.

415. Stagecraft and Lighting. Credit 3(2-2)

Study of principles of scenery construction and painting. Practice in mounting productions for major shows. Prerequisite: English 315.

416. Play Direction. Credit 3(3-0)

(Formerly English 228.)

Elementary principles of staging plays. Practical work in the directing of the one-act play. Attention is given to the principles of selection, casting, and rehearsing of plays. Exercises, lectures, and demonstrations. Prerequisite: English 340, 341, and 315.

Literature

225. Introduction to Literary Studies. Credit 3(3-0)
(Formerly English 245.)

Required of English majors and minors at the beginning of the sophomore or the junior year. Not open to any students except majors and minors.

An introduction to the critical analysis, literary criticism, investigative and bibliographical techniques necessary to advanced study in English.

320. English Literature I. Credit 5(5-0)
(Formerly English 222.)

A survey of English literature from the beginning to 1700; a study of the literary movements and major authors in relation to the cultural history of England.

321. English Literature II. Credit 5(5-0)
(Formerly English 223.)

A continuation of the study of English literature, from 1700 to 1914.

330. American Literature I. Credit 5(5-0)
(Formerly English 220.)

A survey of American literature from colonial days to the pre-Civil War period; a study of the literary movements and major authors in relation to the cultural history of America.

331. American Literature II. Credit 5(5-0)
(Formerly English 221.)

A continuation of the study of American literature, from 1865-1914.

332. Contemporary American & British Literature. Credit 5(5-0)
(Formerly English 242.)

A study of the major writers in relation to the cultural and literary traditions from 1914 to the present; includes a study of Negro authors who have contributed significantly to literature.

- 335. Classical Mythology and Biblical Literature.** Credit 3(3-0)
(Formerly English 241.)

A study of myths and stories of the ancient Greek, Roman, and Hebrew civilizations preparing the student for an understanding of the allusions of writers of later cultures.

- 430. English Novel.** Credit 3(3-0)
(Formerly English 248.)

A history of the English novel from the eighteenth century to 1914 and of the literary traditions which influenced the development. Offered in alternate years, beginning in 1960-61.

- 440. Shakespeare.** Credit 5(5-0)
(Formerly English 234.)

An introduction to a study of the works of William Shakespeare through a detailed examination of representative works selected from the major periods of his development as a dramatist.

- 450. Seminar.** Credit 0

A discussion of problems in literature and composition. Required of senior English majors and minors.

Advanced Undergraduate and Graduate

- 500. Grammar and Composition.** Credit 3(3-0)

A course designed to provide a review of fundamentals of grammar and composition for the elementary or secondary school teacher.

- 501. Language Arts Workshop for Elementary Teachers.** Credit 3(3-0)

A course designed to provide elementary school teachers with an opportunity to discuss problems related to the language arts taught in the elementary school.

- 505. Literary Research and Bibliography.** Credit 3(3-0)
(Not open to those who have completed English 401.)

An introduction to tools and techniques used in investigation of literary subjects.

- 510. Problems in Voice and Speech.** Credit 3(3-0)

A course designed to provide a review of the fundamental skills of oral communication and instruction in public speaking.

- 515. Community and Creative Dramatics.** Credit 3(3-0)

An introduction to basic elements and techniques of play production: acting, direction, stagecraft, lighting, costuming, play selection.

- 520. Children's Literature.** Credit 3(3-0)

A study of the types of literature designed especially for students in the upper levels of elementary school and in junior high school.

- 525. Mythology.** Credit 3(3-0)

A study of the myths which form the basis for allusions in the literature of Western civilization.

- 530. Shakespeare.** Credit 5(5-0)

An introduction to Shakespeare's works through an intensive study of representative comedies, tragedies, and history plays. The graduate student will be expected to demonstrate his ability to teach one of the plays. Prerequisite: English 225 or 610.

540. The American Novel. Credit 3(3-0)

A history of the American novel from Cooper to Faulkner. Melville, Twain, Howells, James, Dreiser, Lewis, Hawthorne, Faulkner, Hemingway will be included. Prerequisite: English 225 or 610.

541. The Negro Writer in American Literature. Credit 3(3-0)

A study of prose, poetry, and drama by American authors of Negro ancestry. Their works will be studied in relation to the cultural and literary traditions of their times. Dunbar, Chestnutt, Johnson, Cullen, Bontemps, Hughes, Wright, Ellison, Baldwin, and Yerby will be included.

Graduate

These courses are open only to graduate students in secondary education. For descriptions of these courses, see the bulletin of the Graduate School.

606. A History of the English Language. Credit 3(3-0)**607. Contemporary Grammar. Credit 3(3-0)****610. Literary Analysis. Credit 3(3-0)****611. Literary Criticism. Credit 3(3-0)****621. Milton. Credit 3(3-0)****625. Eighteenth Century English Literature. Credit 3(3-0)****626. Romantic Prose and Poetry. Credit 3(3-0)****627. Studies in American Literature. Credit 3(3-0)****631. Restoration and 18th Century Drama. Credit 3(3-0)****632. American Drama. Credit 3(3-0)****640. Modern British and Continental Fiction. Credit 3(3-0)****650. Seminar. Credit 1(1-0)****HUMANITIES****Undergraduate****201. An Introduction to the Humanities. Credit 3(3-0)**
(Formerly Humanities 200.) Prerequisite: English 101, 102.

An introduction to the basic concepts essential to an understanding and appreciation of literature, music, and the fine arts as interrelated arts.

202. Humanities I. Credit 3(3-0)

A chronological survey of master works, philosophical ideas, and artistic movements from Greek civilization through the Medieval Period. Prerequisite: Humanities 201.

203. Humanities II. Credit 3(3-0)

A continuation of 202, from the Italian Renaissance through the eighteenth century. Prerequisite: Humanities 201.

204. Humanities III. Credit 3(3-0)

A continuation of 203, from the Romantic Period to the present. Prerequisite: Humanities 201.

DEPARTMENT OF FOREIGN LANGUAGESWAVERLYN N. RICE, *Chairman*

The Department of Foreign Languages is established on the principle that, in a democratic society where freedom of national and international communication is desirable and necessary, the individual not only must be able to use his native tongue effectively, but must be able to converse with and understand people of other nations by knowing their languages. Therefore, this Department has dedicated itself to develop the most useful world citizens—those who will be able to construct new dimensions in a peace loving world.

The Department of Foreign Languages has for its objectives the following:

1. To develop reasonable facilities in the reading, speaking, and writing of modern foreign languages.
2. To lead students to an intelligent appreciation of outstanding literary masterpieces.
3. To develop a better knowledge of continental contributions to modern culture.
4. To create a spirit of understanding that will result in proper attitude toward different national groups.
5. To prepare students whose interests are in the area of teaching for employment in secondary schools, especially for those of North Carolina.
6. To encourage students who manifest linguistic ability to continue further study in this area and possibly research.

The Department of Foreign Languages offers courses in French, Spanish and German. A major is given in French, a minor in French and Spanish and basic courses are offered in German.

Elementary language courses 101, 102, 103 are recommended for those students who have no previous knowledge of the language, or who present one unit of high school credit. For those students presenting two units of high school credit, intermediate language courses 201 and 202 are required. However, if students with two units of the language in high school should take an elementary course, they are required to complete 15 hours on the same level.

Suggested Sequence for French Major**Teaching Program****Freshman Year**

Freshman Program of School of Education and General Studies.

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 201	—	3	—
Humanities 201, 202, 203	3	3	3
French 201, 202, 203	5	5	5
French 204, 205, 206	3	3	3
Psychology 201, 203	5	—	3
Physical Education (Men)			
201, 203, 205, 211 or 233	1	1	1
Physical Education (Women)			
202, 212, 222	1	1	1
ROTC (Men) 201, 202, 203	2	2	2
Health Education (Women) 111	—	3	—
Health Education (Men) 111	—	—	3
English 210	—	—	3
	17-19	17-20	18-20

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
French 301, 302, 303	5	5	5
Education 202	3	—	—
Guidance 501	—	3	—
Psychology 301, 302	—	3	3
Electives	10	8	10
	18	19	18

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
French 401, 402	5	5	—
French 404	5	—	—
Education 301, 304-311, 402	3	3-5	10
Electives	5	8	3
	18	18	13

The Minor in Foreign Languages

Students electing a foreign language as a minor are advised to include the following courses in their programs:

The Minor in French

French 201 (5), 202 (5), and 203 (5)
 French 204 (3), 205 (3), and 206 (3)
 French 301 (5) and 404 (5)

The Minor in Spanish

Spanish 201 (5), 202 (5), and 203 (3)
 Spanish 204 (5) and 205 (3)
 Spanish 301 (3) and 302 (5)

COURSES IN FOREIGN LANGUAGES**FRENCH****Undergraduate**

- 101. Elementary French.** Credit 5(5-0)
Essentials of grammar and pronunciation, acquisition of vocabulary, and attention to elementary composition. For students without high school French. Fall.
- 102. Elementary French.** Credit 5(5-0)
Continuation of grammar and pronunciation. Conversation and dictation encouraged. Winter.
- 103. Elementary French.** Credit 5(5-0)
Practice in oral and written composition. Acquisition of taste for advanced French through reading translation, and interpretation of easy modern French prose. Spring.
- 201. Intermediate French.** Credit 5(5-0)
Course open to students who have completed two units of high school French or college French 101, 102, 103. Brief review of grammar followed by practice in pronunciation. Fall.
- 202. Intermediate French.** Credit 5(5-0)
Reading of French plays encouraged. Ability to write and converse in French further developed. Winter.
- 203. Phonetics.** Credit 5(5-0)
Course intended for students majoring or minoring in French. Recommended for those who wish to improve pronunciation. Spring.
- 204. Oral French.** Credit 3(3-0)
Basic oral French course prepares students for French 205 and 206. To improve the student's hearing and speaking abilities in French.
- 205. Intermediate Conversational French.** Credit 3(3-0)
To give students intensive training in self-expression and to improve pronunciation and diction in reading and speaking. Class conducted in French. winter.
- 206. Advanced Conversational French.** Credit 3(3-0)
Intensive oral and written work including discussions and compositions in French. Assigned outside readings on newspaper articles, literature, civilization, etc. encouraged. Spring.
- 207. Introductory Scientific French.** Credit 3(3-0)
Emphasis placed on Scientific French on the elementary level. Basic scientific vocabulary introduced to enable student to translate French of a scientific nature.
- 301. Survey of French Literature.** Credit 5(5-0)
(Formerly French Literature of the Middle Ages and the Renaissance.)
A general introduction to the more advanced study of French literature. This course gives a clear idea of the great periods and main tendencies in history of French thought and letters from 842 to the present. Fall.
- 302. French Literature of the Seventeenth Century.** Credit 5(5-0)
Course presents Classicism through masterpieces of Corneille, Racine, Moliere and other authors of the "Golden Period" in French letters. Conducted in French. Fall.

303. French Literature of the Eighteenth Century. Credit 5(5-0)

To study in particular the life and works of Montesquieu, Voltaire, Rousseau, and the Encyclopedists. Class Conducted in French. Winter.

304. French Literature of the Nineteenth Century. Credit 5(5-0)

Study of the great literary currents of the Nineteenth century, Romanticism and Realism. Spring.

305. Contemporary French Literature. Credit 3(3-0)

Course deals with the chief writers and literary currents of the time through lectures and outside readings.

401. Advanced French Composition. Credit 5(5-0)

Advanced course in oral and written self-expression in French. Special attention to vocabulary building, free composition, and conversation, prepared and improvised, covering the many phases of everyday activities. Spring.

402. Advanced French Grammar and Conversation. Credit 5(5-0)

Course for students having some experience in written French. To improve oral conversation. Working groups arranged for practice in French conversation. Winter.

403. Advanced French Grammar and Reading. Credit 5(5-0)

To give the student practical training in the use of advanced French grammar and reading. Conducted largely in French. Spring.

404. French Civilization. Credit 5(5-0)

A general survey of the history of France, with emphasis on the social, political and economic development designed to give the student an understanding of present conditions and events. A detailed study of such French institutions as art, music, and education. Course is also offered in conjunction with reports of collateral readings.

Advanced Undergraduate and Graduate**501. Problems and Trends in Foreign Languages. Credit 3(3-0)**

Problems encountered by teachers given consideration. Place and purpose of foreign language in the curriculum today.

502. Oral Course for Teachers of Foreign Languages. Credit 3(2-2)

Designed for teachers of foreign languages to improve pronunciation and spelling.

503. Research in the Teaching of Foreign Languages. Credit 3(3-0)

Open to students who are interested in undertaking the study of a special problem in the teaching of a foreign language.

504. The French Theatre. Credit 3(3-0)

A thorough study of the French theatre from the Middle Ages to the present.

505. The French Novel. Credit 3(3-0)

A study of the novel from the Seventeenth Century to the present.

506. French Syntax. Credit 3(3-0)

Designed to teach grammar on the more advanced level.

COURSES IN GERMAN**Undergraduate**

German 101. Elementary German. Credit 5(5-0)
Fundamentals of pronunciation and grammar. Attention given to vocabulary building.

German 102. Elementary German. Credit 5(5-0)
Continuation of emphasis on pronunciation, grammar, and vocabulary building. Attention given studied and sight translations. Oral practice encouraged.

German 103. Elementary German. Credit 5(5-0)
Continuation of emphasis on pronunciation and grammar, with some practice in diction and conversation. Maximum attention given to graded readings in German prose and poetry.

German 201. Conversational German. Credit 5(5-0)
Intensive practice in everyday German is provided. Prerequisites are German 101, 102, 103, or approval of instructor.

German 202. Intermediate German. Credit 5(5-0)
The course is open to students who have completed German 101, 102, 103. The students read a cross-section of the simpler writings in German literature and German newspapers.

German 203. Intermediate German. Credit 5(5-0)
The students read a significant, simplified novel and learn to write simple compositions in German.

German 204. Intermediate German. Credit 5(5-0)
Advanced reading is introduced and advanced composition is practiced.

German 205. Introductory Scientific German. Credit 3(3-0)
Emphasis placed on Scientific German on the elementary level. Basic scientific vocabulary introduced to enable students to translate German of a scientific nature.

German 206. Intermediate Scientific German. Credit 3(3-0)
This course continues Scientific German of the intermediate level. Emphasis is placed on reading works in Science.

COURSES IN SPANISH**Undergraduate**

101. Elementary Spanish. Credit 5(5-0)
A course for beginners which consists of grammar, composition, translation, practice in pronunciation and use of the spoken language.

102. Elementary Spanish. Credit 5(5-0)
Continues work of Elementary Spanish 101 with abundant oral and written exercises.

103. Elementary Spanish. Credit 5(5-0)
Continuation of Elementary Spanish 102. Attention is given to advanced grammar and development of conversational skills.

201. Intermediate Spanish. Credit 5(5-0)

For students who have completed two units of high school Spanish or College Spanish 101, 102, and 103. Review of salient points of elementary grammar.

202. Intermediate Spanish. Credit 5(5-0)

Reading of Spanish plays, short stories, and novels. Emphasis on oral practice and composition.

203. Phonetics. Credit 3(3-0)

A systematic analysis of speech sounds, and the operation of phonetic laws.

204. Intermediate Conversation. Credit 5(5-0)

Practice and drill in oral Spanish based principally on topics of current interest.

205. Introduction to Spanish Literature. Credit 3(3-0)

Readings of representative authors of Spain.

301. La Cultura Hispanica. Credit 3(3-0)

A course which covers the basically significant elements of Hispanic Civilization: geography, history, literature, and economics of the Spanish people.

302. Survey of Spanish Literature. Credit 5(5-0)

A survey of Spanish literature from the Cid through the golden age with lectures: illustrated readings and reports.

303. Survey of Spanish Literature. Credit 5(5-0)

A survey of Spanish literature from the seventeenth century to the present.

304. Syntax. Credit 3(3-0)

Systematic study of Spanish grammar with conversational and other exercises based on contemporary authors.

DEPARTMENT OF MUSIC

HOWARD T. PEARSALL, *Chairman*

Geared toward teacher-education, the Department of Music purports to teach those musical facts, elements, and basic skills necessary for the development of a literate music teacher. In keeping with such teaching the department's objectives are:

1. A knowledge of the structural elements in music through the development of sound personal musicianship and the acquisition of such functional skills as transposition, score reading and analysis, and arranging for instruments as required in teaching situations.
2. A sensitivity to and critical awareness of the elements of aesthetic musical performance through a performance of and reading of standard technique and characteristic tone quality of each band and orchestral instrument in symphonic bands.

3. A comprehensive understanding of music history and literature covering the various eras in music.
4. Adequate training in teaching and conducting ensembles, including interpretation.
5. A functional command of the keyboard through skills in reading, transposing, and improvising accompaniments for the classroom, assembly singing and other occasions.
6. An understanding of materials, equipment and methods of teaching music on all levels and a concept of the sequential development of music learning.
7. An understanding of many divisions in professional education, such as (1) an understanding of the normal sequences of human growth, and development; (2) the ways learning take place; (3) the purpose, organization, and administration of the school system; (4) a broad social, historical, and philosophical orientation to the school in our society and to the profession of teaching; and (5) experiences in the total program through practice teaching.
8. An understanding of man's place in society through a survey of the Humanities, Physical Sciences, Biological Sciences, and Social Sciences.

GENERAL REQUIREMENTS

1. In class subjects such as harmony, history of music, etc., and academic subjects, one quarter hour of credit shall be given for one period of recitation (50 minutes) plus two hours of preparation each week of quarter, inclusive of examinations. One hour of credit shall be given for two laboratory periods. In subjects such as ear training, sight singing, dictation, ensemble, etc., where little outside preparation is required, two 50 minute laboratory periods per week shall be required for one quarter hour of credit.
2. One quarter hour credit shall be given for each three hours per week of practice, plus the necessary group instruction, with a maximum of four credits per quarter allowed for the major subject in applied music.

Specific Requirements for Undergraduate Degree

Two hundred quarter hours are necessary. Of these, 80 hours should be General Culture (non-music subjects, areas in communication and in mathematics, psychology, other than Educational Psychology, Music Literature and History, The Humanities, Social Science Survey, Biological Science Survey and Natural Science Survey); 80 hours should be music courses (Ear Training and Dictation, Harmony, Form and Analysis, Counterpoint, and Instrumental Arranging, Ensemble, Piano, Major Performance and Minor Performance); and 40 hours should be Professional Education (music Education Methods and Materials, Observation and Student Teaching, and Professional Education Courses aside from Music Education). Students

must participate in a music ensemble each quarter of residence. Examinations for major and minor instruments will be by jury of the music faculty.

The Major in Music

The Department of Music's curriculum is designed primarily toward the teaching of instrumental music in the public schools. The pursuance of courses leading to the B.S. Degree in music should enable one to get a teaching certificate for the State of North Carolina. The students who complete courses for the B.S. Degree may or may not be able to get a teacher's certificate for states other than North Carolina. It is their responsibility to write to the State Departments in those states, other than North Carolina, in which they wish certification.

Suggested Programs

Freshman Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Biological Science 201	—	—	5
Education 101	0	—	—
English 101, 102, 103	5	5	5
Health Education 111	—	—	3
Mathematics 111, 112	5	5	—
Music 128	—	—	2
Music (Band and Orchestral Instrumental Major) 131, 141, 151	1	1	1
Music (Piano Major) 132, 142, 152	1	1	1
Physical Science 101, 102	5	5	—
ROTC 101, 102, 103	1	1	1
Social Science 101, 102, 103	3	3	3
	20	20	20

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 201	—	3	—
German 101, 102, 103	5	5	5
Humanities 201, 202, 203	3	3	3
Music 201, 202, 203	3	3	3
Music 228, 238, 248	2	2	2
Music (Band and Orchestral Instrumental Major) 231, 241, 251	1	1	1
Music (Piano Major) 232, 242, 252	1	1	1
Psychology 201, 203	5	—	3
Physical Education (Men) 101, 103	—	1	1
Physical Education (Women) 102, 104	—	1	1
ROTC 201, 202, 203	2	2	2
	21	21	21

Junior Year

Band and Orchestral Instrumental Major

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 202	3	—	—
Guidance 501	—	—	3
Music 301, 302, 303	3	3	5
Music 318, 319, 320	3	3	3

Music 331, 341, 351	1	1	1
Music 323, 324, 325	2	2	2
Music, 328, 338, 348	2	2	2
Music 329, 339, 349	2	2	2
Physical Education (Men) 111, 201, 205	1	1	1
Physical Education (Women) 106, 202, 212 ..	1	1	1
Psychology 301	—	3	—
	17	17	19

Junior Year**Organ or Piano Major**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 202	3	—	—
Guidance 501	—	—	3
Music 301, 302, 303	3	3	5
Music 318, 319, 320	3	3	3
Music 323, 324, 325	2	2	2
Music 326, 336, 346	2	2	2
Music 328, 338, 348	2	2	2
Music 332, 342, 352	1	1	1
Physical Education (Men) 111, 201, 205	1	1	1
Physical Education (Women) 106, 202, 212 ..	1	1	1
Psychology 301	—	3	—
	17	17	19

Senior Year**Band and Orchestral Instrumental Major**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 301, 306, 302	3	5	3
Education 402	—	—	10
Music 401, 402	5	5	—
Music 403	3	—	—
Music 418, 419	2	2	—
Music 426, 436	2	2	—
Music 428, 438	2	2	—
Music 431, 441	1	1	—
Physical Education	—	1	—
	18	18	13

Senior Year**Organ or Piano Major**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 301, 306, 302	3	5	3
Education 402	—	—	10
Music 401, 403	5	3	—
Music 404	3	—	—
Music 418, 419	2	2	—
Music 426, 436	2	2	—
Music 428, 438	2	2	—
Music 432, 442	1	1	—
Physical Education	—	1	—
	18	16	13

COURSES IN MUSIC**Undergraduate****THEORY**

- 001. Remedial Theory.** No Credit
(Formerly Music 201.)
Notation, scales, intervals, triads in all positions, in all major keys, with ear training, sight singing, and dictation.
- 002. Remedial Theory.** No Credit
(Formerly Music 202.)
A continuation of 001, with triads in minor keys.
- 003. Remedial Theory.**
(Formerly Music 203.)
A continuation of 002.
- 200. Sight Singing.** Credit 1(0-2)
Learning to sing simple melodies at sight. For choir, male singers, and home economics majors.
- 201. Theory I.** Credit 3(2-2)
(Formerly 204.)
Use of primary & secondary triads in four parts, use of figured bass, non-harmonic tones.
- 202. Theory II.** Credit 3(2-2)
(Formerly 205.)
Seventh chords, altered chords, secondary dominants.
- 203. Theory III.** Credit 3(2-2)
(Formerly 206.)
Augmented chords, modulation.
- 301. Theory IV.** Credit 3(2-2)
(Formerly 207.)
Ninth chords, eleventh chords, thirteenth chords, advanced modulation.
- 302. Theory V.** Credit 3(2-2)
(Formerly 208.)
A continuation of 204.
- 303. Counterpoint.** Credit 5(5-0)
(Formerly 210.)
Sixteenth century polyphonic compositions; use of modes. Introduction to eighteenth century contrapuntal style.
- 401. Form and Analysis.** Credit 5(5-0)
(Formerly 209.)
Techniques of harmonic, contrapuntal, and formal analysis of music of the sixteenth century, Baroque, Viennese Classical, Romantic, and Impressionistic periods.
- 402. Instrumental Arranging.** Credit 5(5-0)
(Formerly 212.)
The art of writing for small combinations of instruments; the art of sectional writing for instruments; the art of scoring for full band.

403. Score Reading and Conducting. Credit 3(1-4)
(Formerly 211.)
404. Accompanying. Credit 3(1-4)

Music Literature

316. Music for the Home, School, and Community. Credit 2(1-2)
(Formerly 216.) Designed for Home Economics Majors.

The function of music in daily living, with emphasis on listening for personal growth. Music for receptions, dinners, and other festivities. Music clubs, the community concerts, and music in recreation.

318. History and Appreciation of Music. Credit 3(2-2)
(Formerly Music 218.)

Music of the ancient Greeks to the seventeenth century. For Music majors.

319. History and Appreciation of Music. Credit 2(2-2)
(Formerly Music 219)

Music of the 17th, 18th, and 19th centuries. For Music Majors.

320. History and Appreciation of Music. Credit 3(2-2)
(Formerly Music 220.)

Music of the Neo-Romantic and modern periods. For Music Majors.

323. Percussion Instruments. Credit 2(1-2)
(Formerly Music 223.)

The percussion instruments studied. Some proficiency on at least one instrument of this section is required of each student.

324. Woodwind Instruments. Credit 2(1-2)
(Formerly 224.)

Woodwind instruments studied. Some proficiency on at least one instrument of this section is required.

325. Brass Instruments. Credit 2(1-2)
(Formerly Music 225.)

The brass instruments studied. Some proficiency on at least one instrument of this section is required of each student.

- 326, 336, 346, 426, 436. Voice Classes. Credit 2(0-4)
(Formerly Music 226.)

Open to qualified persons who wish to know the technique of vocal culture.

418. Music of the Baroque. Credit 2(2-2)
(Formerly 221.)

419. Music of the Romantic Era. Credit 2(2-2)
(Formerly 222.)

Applied Music

Each music major will select a major instrument and two minor instruments. One of the minor instruments should be piano if the student has not had such study. Thirty-two quarter hours of applied music are required for the State of North Carolina certification and these instruments should be started in the freshman year. Music 323, 324, and 325 may be included in the total number of hours for credit. Major instruments must be studied for three years, and minor instruments for five quarters.

Definition of Major Courses—A major course is designed to give intensive and extensive training in an instrument and includes an individual lesson of one hour weekly, or the equivalent in smaller groups.

A minimum of one and one-half hours daily practice is required. The following instruments are suitable for major concentration:

Major Instruments

Piano	Oboe	Percussion
Organ	Bassoon	Trombone—Baritone
Flute	Cornet—Trumpet	Tuba—Bass
Clarinet	French Horn	
Saxophone		

NOTE: All examinations in major instruments are by jury composed of faculty.

Definition of Minor Courses—A minor instrument course is designed to give those students whose major instrument is in another family a practical approach to an additional instrument, preferable in a different instrument family. Instruction in minor courses include small groups. One hour of daily practice is required. The following courses and instruments are suitable for minor concentration.

Minor Instruments

Piano	Harp	Cornet—Trumpet
Organ	Flute	French Horn
Violin	Oboe	Trombone—Baritone
Viola	Bassoon	Tuba—Bass
Cello	Clarinet	Percussion
Bass Viol	Saxophone	Voice

004. Piano Class.

No Credit

This course designed for band majors and minors. Simple compositions, scales and arpeggios studied.

128, 228, 238, 248, 328, 338, 348, 428, 438. **Major Instruments.** Credit 2(0-5)

Each music major will select a major instrument. Proficiency on major instruments will be determined by lessons and by regular appearance of student recitals.

329, 339, 349. **Minor Instruments.**

Credit 2(0-4)

Each music major will select a minor instrument.

131, 141, 151. **Band.**

Credit 1(0-5)

(Formerly 231.1 a,b,c.)

For students planning to major or minor in band or orchestral instruments; open to qualified freshmen who have had at least two years of previous training on a band or orchestral instrument. This includes the College Marching and Symphonic bands. Required of all band and orchestral instrument majors.

231, 241, 251. **Band.**

Credit 1(0-5)

(Formerly 231.3 a,b,c.)

For qualified sophomores. Required of all band and orchestral instrument majors.

- 331, 341, 351. Band.** Credit 1(0-5)
(Formerly 231.3 a,b,c.)
For qualified juniors. Required of all band and orchestral instrument majors.
- 431, 441, 451. Band.** Credit 1(0-5)
(Formerly 231.4 a,b,c.)
For qualified seniors. Required of all band and orchestral instrument majors.
- 132, 142, 152. Choir.** Credit 1(0-4)
(Formerly 231.1 a,b,c.)
Representative sacred and secular choral masterpieces from the fifteenth century to the present. Open to qualified freshman. Required of all piano majors.
- 232, 242, 252. Choir.** Credit 1(0-4)
(Formerly 232.2 a,b,c.)
For qualified sophomores. Required of all piano majors.
- 332, 342, 352. Choir.** Credit 1(0-4)
(Formerly 231.3 a,b,c.)
For qualified seniors. Required of all piano majors.
- 432, 442, 452. Choir.** Credit 1(0-4)
(Formerly 231.4 a,b,c.)
For qualified seniors. Required of all piano majors.
- 133, 143, 153. Male Singers.** Credit 1(0-4)
(Formerly 233.1 a,b,c.)
The best in choral literature for male voices studied and presented. For qualified freshman.
- 233, 243, 253. Male Singers.** Credit 1(0-4)
(Formerly 233.2 a,b, c.)
For qualified sophomores.
- 333, 343, 353. Male Singers.** Credit 1(0-4)
(Formerly 233.3 a,b,c.)
For qualified juniors.
- 433, 443, 453. Male Singers.** Credit 1(0-4)
(Formerly 233.4 a,b,c.)
For qualified seniors.

Advanced Undergraduate and Graduate

MUSIC EDUCATION

- 534. Music in the Elementary School.** Credit 3(3-0)
Selection and presentation of the rote song; the child's voice in singing—its care and development; the introduction and development of music reading; rhythmic development; creative music and the listening program.
- 535. Music in the Secondary School.** Credit 3(3-0)
Techniques of vocal and instrumental music instruction in the junior and senior high school; the general music class; the organization, administration, and supervision of music programs; The course includes the adolescent's voice and its care; the testing and classification of voices; operetta production, instrumental technology and repair; and a study of materials and methods pertinent to the secondary music curriculum.

536. **Choral Conducting of School Music Groups.** Credit 3(1-4)
The skills of conducting, with literature for mixed, female, and male groups.
538. **The Psychology of Music.** Credit 3(3-0)
The use of psychology in the learning and teaching of music.

PROPOSED PHYSICAL EDUCATION COURSES

The courses in sports officiating may be taken as electives by Physical Education Majors or by non-majors upon the approval of the Department Chairman.

381. **Officiating, Fall Sports.** Credit 1(0-2)
A study of rules, methods, techniques, and practice given in officiating fall sports including football, touch-football, soccer, and speedball.
383. **Officiating, Winter Sports.** Credit 1(0-2)
A study of rules, methods, techniques, and practice given in officiating winter sports including basketball, volleyball, swimming and diving.
385. **Officiating, Spring Sports.** Credit 1(0-2)
A study of rules, methods, techniques, and practice given in officiating spring sports including baseball, wrestling, tennis, track and field.

DEPARTMENT OF HEALTH AND PHYSICAL EDUCATION

WILLIAM M. BELL, *Chairman*

RANDA D. RUSSELL, *Chairman, Women's Division*

The Objectives of the Department of Health and Physical Education are:

1. To provide instruction in a wide variety of physical education activities to meet the needs and interests of all students in the required general education program of the College.
2. To promote participation in wholesome extra-class activities through sponsoring and supervising such organizations as the Cheerleaders' Squad, Dance Group, Gymnastic Squad, Womens Athletic Association, and Intramural Leagues.
3. To provide opportunity for wholesome competition for men possessing exceptional athletic ability through a well-balanced program of varsity athletics.
4. To provide recreational outlets for students and members of the college community through conduct of informal recreational activities.
5. To enrich the total College program through cooperation with the programs of such units of the College as the music and dramatic groups, alumni association, agricultural, homemaking groups, guidance and health service divisions.

6. To provide necessary preparation for students planning careers as teachers of junior and senior high school health and physical education and as athletic coaches and recreation leaders.
7. To provide courses in health and physical education which meet State and National Teacher Certification standards.

Any student who, in the opinion of the College medical staff, is unfit to participate in the required activity program may elect a restricted course or any part of a course which will not aggravate the present disability.

Students must be prepared, upon matriculation, to place their orders for the activity uniforms, the approximate cost of which is \$12 for men and \$10 for women. Swimming uniforms cost approximately \$5.

General Physical Education Requirement for Women

Women students in the general education program should complete six quarters of physical education. To assure a well balanced program, courses should be selected according to the sequence below.

Freshman Requirements: 3 credits, to include 102, 104, and 106.

Sophomore Requirements: 3 credits to include: (1) a teams sports course, (2) an individual sports course, and (3) a course in either dance, gymnastics, or aquatics. Courses may be taken in any quarter, but not more than one course shall count toward the six quarter requirement during a quarter.

Junior and Senior Election: Upperclassmen who have fulfilled the six quarter activity requirement and who wish to gain more experience than is afforded by the required sequence may elect any physical education activity course numbered above 200.

NOTE: ALL WOMEN'S COURSES END IN EVEN NUMBERS.

General Physical Education Requirement for Men

Six quarter hours of Physical Education are needed to meet the general education requirement of the College. All freshmen men are required to take 101 Fundamentals I, 103 Fundamentals II, 111 Combatives, Track and Field or 131 Beginning Swimming.

Sophomores are required to take three Physical Education courses comprised of two team sports and one individual sport which may be elected from the following groups: (1) 201 Softball and Soccer or 203 Touch Football and Speedball, (2) 205 Volleyball and Basketball, and (3) one of the following: 211 Archery, 213 Recreational games, 217 Beginning Tennis, 219 Golf, or 233 Intermediate Swimming. **NOTE: All men's courses end in odd numbers.**

General Courses for Women

102. Fundamentals of Physical Education. I Fall Credit 1(0-2)

Movement exploration, basic concepts, activities, skills, and form essential to play and work. Evaluation of physical potential and improvement of function through progressive sequence of experiences. Sports, dance, and physical education in contemporary culture.

104. **Fundamentals of Physical Education II.** Winter. Credit 1(0-2)
A continuation of 102.

106. **Fundamentals of Physical Education III.** Spring. Credit 1(0-2)
A continuation of 104.

- 152, 154, 156. **Adapted Physical Education Activities.**
Fall, Winter, Spring. Credit 1(0-2) each quarter
(formerly 215 a,b,c.)

Special activities designed for those students whose medical examinations show that they are unable to participate in regular physical education classes.

202. **Team Sports: Hockey-Soccer.** Fall. Credit 1(0-2)
Fundamental techniques, rules, strategy, terminology, and cultural significance of field hockey and soccer.

204. **Team Sports: Basketball-Volleyball.** Winter. Credit 1(0-2)
Fundamental techniques, rules, strategy, terminology, and cultural significance of basketball and volleyball.

206. **Team Sports: Speedball-Softball.** Spring. Credit 1(0-2)
Fundamental techniques, rules, strategy, terminology, and the cultural significance of softball and speedball.

212. **Individual Sports: Archery-Badminton.** Credit 1(0-2)
(formerly 220c.)

Techniques, rules, playing courtesies, and significance of individual sports to college and after school life.

214. **Individual Sports: Recreational Games.** Credit 1(0-1)
Shuffleboards, handball, deck tennis, table tennis, croquet, modified bowling, and horseshoes.

216. **Individual Sports: Tennis-Golf.** Credit 1(0-2)
Elementary techniques, rules, playing courtesies, terminology, and significance of individual sports to contemporary culture.

222. **Modern Dance.** Credit 1(0-2)
(formerly 217.)

To develop an understanding of the various qualities of movement, the techniques of obtaining and applying them in the art form of dance.

224. **Folk and Tap Dance.** Credit 1(0-2)
Clog, tap, and folk dances characteristic of many nationalities.

226. **Social and Country Dance.** Credit 1(0-2)
Ballroom, square, and round dance forms; fundamentals, leading and following, dance etiquette.

- 232. Aquatics: Beginning Swimming.** Credit 1(0-2)
(formerly 219.)

The elementary skills as outlined in the American Red Cross standards for beginning swimmers.

- 234. Aquatics: Intermediate Swimming.** Credit 1(0-2)
(formerly 219a.)

Coordinated strokes, fundamentals of diving and skills outlined in the American Red Cross standards for intermediate swimmers.

- 236. Aquatics: Life Saving.** Credit 1(0-2)
(formerly 219b)

Fundamental skills and techniques of live saving as outlined in the American Red Cross Standards for Life Saving and Water Safety.

- 242. Gymnastics.** Credit 1(0-2)
Elementary tumbling, apparatus work, and free exercise.

- 244. Intermediate Gymnastics.** Credit 1(0-2)

Individual routines and performance techniques on the balance beam, trampoline, parallel bar, and in free exercise.

- 252, 254, 256. Adapted Physical Education.** Credit 1(0-2) each quarter
(formerly 221, a,b,c.)

A continuation of 156.

- 312. Golf.** Credit 1(0-2)
(formerly 214)

Rules, techniques, performance skills, playing courtesies of golf. Opportunity to play golf on a regulation golf course. Prerequisite: six quarters of P.E.

- 314. Ice Skating.** Credit 1(0-2)

Fundamental skills of ice skating. Opportunity to skate on regulation ice rink. Prerequisite: six quarters of P.E.

- 316. Bowling.** Credit 1(0-2)

Rules, techniques, and game skills of bowling. Opportunity to bowl on regulation bowling alley. Prerequisite: six quarters of P.E.

- 318. Tennis.** Credit 1(0-2)
(formerly 213.)

Rules, techniques, strategy, and playing courtesies of tennis. Emphasis upon singles and doubles game play. Prerequisite: six quarters of P.E.

General Courses for Men

- 101. Fundamentals of Physical Education I.** Credit 1(0-2)
(formerly 201.) Required of all freshmen men.

To develop an understanding of the value and the logic behind exercise and sports activity and regular habits of exercise, to determine the physical fitness needs of the students through a scientific testing program, and to familiarize the student with the nature, basic rules, techniques and skills of a wide variety of popular American sports and guide him into activities which will be of most interest and benefit to him now and in the future.

- 101. Fundamentals of Physical Education II.** Credit 1(0-2)
(formerly 202.) Required of all freshmen men.

A continuation of 101.

111. **Combatives, Track and Field.** Credit 1(0-2)
(formerly 210c.)

To develop performance skills, techniques and understanding of a wide variety of individual, dual and team combatives, track and field activities.

131. **Swimming, Beginning.** Fall, Winter, Spring Credit 1(0-2)
(formerly 219.)

To teach the elementary skills as outlined in the American Red Cross Standards for beginning swimmers.

151. **Adapted Physical Education.** Fall Credit 1(0-2)
(formerly 215a.)

Special activities designed for those students whose physical examinations show that they are unable to participate in the regular physical education classes.

153. **Adapted Physical Education.** Winter Credit 1(0-2)
(formerly 215b.)

A continuation of Physical Education 151.

155. **Adapted Physical Education.** Spring Credit 1(0-2)
(formerly 215c.)

A continuation of Physical Education 153.

Team Sports for Sophomore Men

201. **Softball and Soccer.** Fall. Credit 1(0-2)
(formerly 210a and 220c.)

To develop an understanding of rules, strategy and performance skills in softball and soccer.

203. **Touch Football and Speedball.** Fall Credit 1(0-2)
(formerly 210a and 220a.)

To develop an understanding of rules, strategy and performance skills in touch football and speedball.

205. **Volleyball and Basketball.** Winter Credit 1(0-2)
(formerly 210c and 220b.)

To develop an understanding of rules, strategy and performance skills in volleyball and basketball.

Individual Sports for Sophomore Men

211. **Archery and Badminton.** Fall and Spring Credit 1(0-2)
(formerly 220c(w).)

To develop an understanding of rules, strategy and performance skills in archery and badminton.

213. **Recreational Games.** Fall, Winter, Spring Credit 1(0-2)

To develop an understanding of and performance skills in a wide variety of recreational games such as shuffleboard, handball, deck tennis, croquet and horseshoes.

217. **Beginning Tennis.** Fall and Spring Credit 1(0-2)
(formerly 213.)

To develop an understanding of rules, strategy and performance skills in tennis.

219. **Beginning Golf.** Fall and Spring. Credit 1(0-2)
(formerly 214.)

To develop techniques and performance skills in golf.

233. **Swimming, for Intermediates.** Fall, Winter, Spring Credit 1(0-2)
(formerly 219a.)

A continuation of 131.

235. **Swimming, Life Saving.** Fall, Winter, Spring Credit 1(0-2)
(formerly 219b.)

To teach the fundamental skills and techniques as outlined in the American Red Cross Standards for Life Saving and Water Safety.

243. **Gymnastics.** Fall, Winter, Spring Credit 1(0-2)
(formerly 218.)

To develop performance skill and techniques in tumbling and apparatus.

251. **Adapted Physical Education.** Fall Credit 1(0-2)
(formerly 221a.)

A continuation of 155.

253. **Adapted Physical Education.** Winter Credit 1(0-2)
(formerly 221b.)

A continuation of 251.

255. **Adapted Physical Education.** Spring Credit 1(0-2)
(formerly 221c.)

A continuation of 253.

Elective courses for junior and senior students who have completed all physical education requirements, and elected by sophomores upon approval of advisor.

313. **Skating, for beginners.** Winter Credit 1(0-2)

To develop performance skills and techniques in ice skating.

315. **Bowling.** Winter Credit 1(0-2)

To develop performance skills and techniques in bowling.

HEALTH EDUCATION COURSES

(Open to all Students)

111. **Personal Hygiene.** Credit 3(3-0)
(Formerly 211.)

This course is designed to give the student definite knowledge of the principles of personal health, both mental and physical, and to prepare him for self-guidance through and beyond the college years. Emphasis is placed upon information pertinent to social behavior today and upon effective approaches to college living.

212. **First Aid.** Credit 1(0-2)

For students other than those majoring in physical education. First Aid to the injured in the home, school and community. A consideration of First Aid practices with laboratory experiences as well as lecture and discussion opportunities. Successful completion of this course leads to the Red Cross Standard certificate in First Aid.

234. **Community Health.** Credit 3(3-0)

An introductory study of environmental factors which affect health. Emphasis will be placed upon the health of the group rather than that of the individual. Consumer health, community resources for health, and prevention and control of disease through organized community efforts will be stressed.

Suggested Program for Health and Physical Education for Women Major Students**Freshman Year**

Freshman program for School of Education and General Studies.

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 203	—	—	3
English 210	3	—	—
French, German or Spanish	5	5	—
Health Education 234	—	—	3
Humanities 201, 202, 203	3	3	3
Physical Education 202, 212, 222, 232	4	—	—
Physical Education 204, 214, 224, 242	—	4	—
Physical Education 206, 216, 234	—	—	3
Physical Education 240	—	—	2
Psychology 201	—	5	—
Zoology 102	—	—	4
	15	17	18

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 201, 202	3	3	—
Health Education 338, 336	—	3	3
Humanities 204	3	—	—
Physical Education 371, 333, 373	1	2	1
Physical Education 372, 374, 376	2	2	2
Physical Education 339	—	—	5
Physical Education 341	—	—	3
Psychology 203, 301, 302	3	3	3
Zoology 307, 401	5	5	—
	17	18	17

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 304, 301	3	3	—
Education 401, 402	3	10	—
Health Education 444	3	—	—
Physical Education 471, 472	1	—	1
Physical Education 444, 442	3	—	3
Physical Education 448	—	—	3
Physical Education 449	—	—	5
Electives	3	—	6
	16	13	18

Suggested Program for Health and Physical Education for Men Major Students**Freshman Year**

Freshman program for School of Education and General Studies.

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 203	—	—	3
English 210	3	—	—
French, German or Spanish	5	5	—
Health Education 234	—	—	3
Humanities 201, 202, 203	3	3	3

Physical Education 336, 334	—	2	2
Physical Education 240	—	—	2
Physical Education 225, 273, 277	1	1	1
Physical Education 271, 275, 279	1	1	1
Psychology 201	—	5	—
R.O.T.C. 201, 202, 203	2	2	2
Zoology 102	—	—	4
	15	19	21

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 201, 202	3	3	—
Health Education 338, 336	—	3	3
Humanities 204	3	—	—
Physical Education 339	—	—	5
Physical Education 341	—	—	3
Physical Education 331, 332, 333	2	2	2
Physical Education 336, 334	—	2	2
Psychology 203, 301, 302	3	3	3
Zoology 307, 401	5	5	—
	16	18	18

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 304, 301 ..	3	3	—
Education 401, 402	3	10	—
Health Education 444	3	—	—
Physical Education 444, 442	3	—	3
Physical Education 448	—	—	3
Physical Education 449	—	—	5
Physical Education 438	2	—	—
Electives	3	—	7
	17	13	18

INTER-DEPARTMENTAL MINOR IN RECREATIONAL LEADERSHIP

Inter-Departmental programs are designed to meet the needs of those students interested in the field of Recreational Leadership. The program cuts across departmental lines and utilizes the courses and resources of other departments and schools to balance and enrich the experiences for recreational minors.

RECREATION MINOR FOR HOME ECONOMICS/AND NURSERY EDUCATION MAJORS. The departments of Home Economics and Physical Education cooperate in an inter-departmental minor in Recreation. The schedule of courses is designed to meet the needs of individual students who desire a background of culture and recreational leadership skills that will enable them to enrich their family life or render distinct contributions to community projects.

RECREATION LEADERSHIP MINOR FOR MAJORS IN SOCIOLOGY. The departments of Social Science and Physical Education cooperate in an inter-departmental minor in Recreation Leadership. The freshman-sophomore requirements are approximately the same as for any bachelor degree pro-

gram in the School of Education and General Studies. In the Junior and Senior years, course work is drawn from other departments and schools to balance and enrich the student's minor program.

NOTE: Students who wish to declare minors in an area of Recreational Leadership should contact one of the chairmen of the cooperating departments, namely; Home-Economics, Physical Education or Sociology.

COURSES FOR WOMEN MAJOR AND MINOR STUDENTS

- 333. Lifesaving and Water Safety.** Credit 2(2-0)
(Formerly 233.)

The teaching of swimming and Life Saving. Skills required for the American Red Cross Standard Life Saving Certificate; instruction in desirable methods and techniques for the teaching of swimming and aquatic events. Prerequisite: 234 or equivalent.

- 340. Elementary School Physical Education.** Credit 3(2-2)

Philosophy, program planning, and methods for teaching children. Observation and instruction of children at various grade levels. Experiences in simple games, relays, stunts, tumbling, creative rhythms and dance, movement exploration.

- 371. Dance Composition.** Credit 1(0-2)

The rhythmical and musical basis of dance, the elements of dance construction. Theory and practice of skills involved.

- 372. Techniques and Methods in Fall Activities.** Credit 2(1-7)

Theory and practice of field hockey, soccer, archery, and golf. Analysis of performance skills, materials, and teaching techniques. Opportunity for officiating in girls and womens sports.

- 373. Applied Dance.** Credit 1(0-2)

A coordinated course designed to increase skill in technique and the use of related art materials.

- 374. Techniques and Methods in Indoor Activities.** Credit 2(1-7)

Theory and practice of basketball, volleyball, gymnastics and apparatus, and recreational games. Materials, analysis of performance, and teaching techniques. Opportunity for obtaining local and national officials rating.

- 376. Techniques and Methods in Seasonal Activities.** Credit 2(1-7)

Theory and practice of speedball, softball, tennis, badminton, track and field. Materials and teaching techniques, analysis of skills involved. Opportunity for obtaining officials ratings.

- 471. Advanced Techniques and Methods in Physical Education Activities.** Credit 1(0-3)

A course designed to increase skill in technique and the use of related materials in the areas of dance, sports, gymnastics, aquatics, fundamentals, or marching and conditioning activities. Emphasis is placed upon the development of competency in areas of individual student weakness.

- 472. Physical Education Specialization.** Credit 1(0-3)

A continuation of 471. Opportunities for careful exploration in one or two areas of special interest through skill development, independent study, field experience, and special projects pertinent to the particular area of interest.

COURSES FOR MEN WHO ARE MAJORING IN PHYSICAL EDUCATION**225. Rhythmics. Credit 1(0-5)**

To teach clog, tap, and folk dances characteristic of many countries, including Sweden, Hungary, Austria, Spain, France, Holland, and the United States.

271. Group Games and Football. Credit 1(0-5)
(Formerly 223.)

Practice and applied techniques of a large variety of games of lower organization of the circle, group and line types which might be suitable for playground, gymnasium, camp and for adult gatherings. Concentration on developing performance skills and understanding of rules of football.

273. Basketball, Stunts and Tumbling. Credit 1(0-5)
(Formerly 226.)

To develop performance skills and understanding of rules of basketball; concentrated practice in techniques and skills of stunts and tumbling.

275. Swimming, Track and Field. Credit 1(0-5)
(Formerly 227.)

To develop basic aquatic skills including the crawl, side stroke, treading, floating, and diving; to develop performance skills and techniques in track and field.

277. Individual Sports. Credit 1(0-5)
(Formerly 228.)

To develop performance skills in a wide variety of individual sports including shuffleboard, handball, table tennis, badminton, croquet, archery, golf, and tennis.

279. Combatives and Baseball. Credit 1(0-5)
(Formerly 229.)

To develop performance skills in a wide range of dual, group and team combatives and running exercises; concentration on developing performance skills and understanding of rules of baseball.

331. The Teaching of Football, Soccer and Speedball. Credit 2(1-2)
(Formerly 231.)

Consideration is given to the teaching of history, rules, performance skills, methods of organizing practices, strategy, team offenses and defenses, and various formations for the three sports.

332. The teaching of Basketball, Stunts and Tumbling. Credit 2(1-2)
(Formerly 232 and 235.)

Consideration is given to the teaching of history, rules, performance skills, individual and team offense and defense in basketball; methods and techniques for teaching stunts and tumbling.

333. Teaching of Swimming, and Life Saving. Credit 2(1-2)
(Formerly 233.)

Skills required for the American Red Cross standard Life Saving certificate; instruction in desirable methods and techniques for the teaching of swimming and aquatic events. Prerequisites: 131 or equivalent.

334. Teaching of Baseball, Track and Field. Credit 2(1-2)
(Formerly 234.)

Consideration is given to the teaching of history and development of each sport, the performance skills, individual and team offenses and defenses, strategy, and rules in baseball, and to the team and individual events of track.

336. **The Teaching of Individual Sports.** Credit 2(1-2)
(Formerly 236.)

Methods and techniques for teaching individual sports including shuffleboard, handball, golf, table tennis, badminton, archery, and tennis.

438. **The Teaching of Net Games.** Credit 2(1-2)
(Formerly 238.)

Methods of teaching a variety of net games, including volleyball, Newcomb, Badminton, tennis, handball, and deck tennis.

COURSES FOR MEN AND WOMEN STUDENTS MAJORING IN PHYSICAL EDUCATION

240. **Introduction to Physical Education.** Credit 2(2-0)

Survey of the nature and scope of physical education; interpretation of objectives and philosophy of physical education as a part of the total educational program. Qualifications, responsibilities, and opportunities of professional personnel. Evaluation of personal fitness and suitability to area of interest.

339. **History and Principles of Physical Education.** Credit 5(5-0)
(Formerly 239.)

The evolution of physical education from the earliest time to the present day. Consideration of the relationship of physical education to education and to national life and ideals through the different historical periods. A critical analysis of the scientific basis for physical education with applications of the aims and objectives to the modern concepts of education.

341. **Kinesiology.** Credit 3(3-0)
(Formerly 241.)

A study of the bodily movements, types of muscular exercise and their relation to the problems of body development.

442. **Community Recreation.** Credit 3(3-0)
(Formerly 242.)

A study of city, state, and national organizations. Practice in the general principles and techniques in the organization and promotion of leisure activities for home, school and community.

443. **The Teaching of Physical Education.** Credit 3(2-2)
(Formerly 243.)

Same as Education 304.

444. **Adapted Physical Education.** Credit 3(3-0)
(Formerly 244.)

Methods of examining and determining needs of the handicapped; activities suitable for individuals with abnormal body conditions, and the conduct of a program of restricted activities to meet their needs.

447. **Minor Problems in Health Education and Physical Education.** Credit 3(3-0)
(Formerly 247.)

This course is designed primarily for seniors to provide them with an opportunity to investigate selected professional problems.

448. **Problems in Physical Education.** Credit 3(3-0)
(Formerly 248.)

Special administrative problems in the organization of physical education programs and the coordination of its different phases pertinent to men and women of professional preparation. Current problems of physical education, including curriculum construction in the light of historical backgrounds, intramural activities, girls' athletics, athletic insurance, and athletic associations.

449. **The Organization and Administration of Health and Physical Education.** Credit 5(5-0)
(Formerly 249.)

Philosophy and policies in the administration of a health and physical education program, including the classification of students, the staff, teaching load, time schedule, finance, the gymnasium, locker-rooms, equipment, and inter-scholastic athletics. Prerequisites: 339 and permission of advisor.

COURSES FOR ADVANCED UNDERGRADUATE AND GRADUATE STUDENTS

501. **Current Problems and Trends in Physical Education.** Credit 3(3-0)

A practical course for experienced teachers. Consideration given to individual problems in physical education with analysis of present trends.

504. **Administration of Interscholastic and Intra-Mural Athletics.** Credit 3(3-0)

A study of the relation of athletics to education, and the problems of finance, facilities, scheduling, eligibility, and insurance. Consideration given to the organization and administration of intra-mural activities in the school program.

505. **Community Recreation.** Credit 3(3-0)

A study of the recreational facilities and problems with consideration being given to the promotion of effective recreational program in rural and urban communities.

506. **Current Theories and Practices of Teaching Sports.** Credit 3(3-0)

Methodology and practice at various skill levels. Emphasis placed on seasonal activity.

HEALTH EDUCATION COURSES

336. **Advanced Hygiene and Principles of Health Education.** Credit 3(3-0)
(Formerly 236.)

A comprehensive review of health facts and scientific principles applicable to the prospective teacher, the school child, and the community. Fundamentals of health promotion in the school program are considered.

338. **First Aid, Safety and Prevention of Injuries.** Credit 3(2-2)
(Formerly 238.)

Techniques of first aid to the injured in the home, school and community and the teaching of safety measures to be practiced in daily living; the prevention and care of injuries occurring in physical education classes and competitive sports. The standard Red Cross First Aid Certificate is awarded upon successful completion of the course.

444. **The Teaching of Health Education.** Credit 3(3-0)
(Formerly 244.)

Methods, materials, and procedures for the teaching of health in the elementary and secondary schools. Prerequisites: H.E. 234 and 338.

Advanced Undergraduate and Graduate**502. Personal, School, and Community Health Problems. Credit 3(3-0)**

A study of personal, school and community health problems and resources. Emphasis placed on the control of communicable diseases, healthful school living and the development in individuals of the scientific attitude and a positive philosophy of healthful living.

503. Methods and Materials in Health Education for Elementary and Secondary Teachers. Credit 3(3-0)

A study of the fundamentals of the school health program, pupil needs, methods, planning instruction, teaching techniques, selection and evaluation of materials for the elementary and secondary programs, and the use of the community resources.

DEPARTMENT OF SOCIAL SCIENCES

FRENISE A. LOGAN, *Chairman*

In keeping with the general objectives of the College, the offerings of this department are designed to provide students with a cultural and humanistic preparation in the Social Sciences, to insure students a proper groundwork on which to build advanced technical and professional courses, and to stimulate those qualities and characteristics from which come intellectual vigor, broad human sympathy and constructive imagination.

THE SOCIAL SCIENCES

The Social Sciences at the Agricultural and Technical College of North Carolina include Anthropology, Economics, Geography, History, Political Science, and Sociology.

THE MAJORS IN THE SOCIAL SCIENCES

Students may secure majors in four specific areas of the Social Sciences: (1) Economics, (2) History, (3) Social Studies, (4) Sociology, and Social Welfare.

The *Economics* major is organized to equip students for graduate study in the field; teaching on the secondary level (certification is necessary); careers in government service, industry and labor. It also serves as an excellent background for the study of law.

The major in *History* is designed to meet the needs of students wishing to teach History in the junior or senior high school, and those desiring to pursue further study in this field. However, a student who intends to major in the area for the specific purpose of teaching must declare his intentions at the beginning of his junior year.

The *Social Studies* curriculum is specifically designed to prepare students for the teaching of History and/or any combination of the Social Sciences listed above, in the Junior and/or senior high school.

The *Sociology* curriculum is designed to meet the needs of students who are interested in social welfare, labor relations, government service, personnel administration, industrial relations, Public relations and kindred vocations, as well as preparing students for graduate work, teaching careers, and related professional work.

A major in any of the Social Science areas requires a minimum of 45 quarter hours.

COURSES IN ANTHROPOLOGY**Undergraduate**

201. Introduction to Anthropology. Credit 3(3-0)

An introduction to the science of anthropology. The nature of man, social anthropology and cultural anthropology will be considered as factors in man's adjustment to his physical, social and cultural environments.

401. Cultural Anthropology. Credit 3(3-0)

Special emphasis upon acculturation. Description and historical review of contacts of societies with different cultural traditions; analysis of interaction and resulting interpretation of cultures.

MAJOR IN ECONOMICS**Core Courses—required of all majors***

310. Principles of Economics	5 hours
312. Economic Problems	5 hours
315. History of Economic Thought	5 hours
407. Intermediate Economic Theory	5 hours
420. Money and Banking	5 hours
430. Elementary Statistics	5 hours
431. Advanced Statistics	5 hours

Electives from which at least 10 hours must be selected to complete the major requirements.

320. Consumer Economics	3 hours
321. Public Finance	5 hours
408. Economic Theory	5 hours
409. National Income Analysis	5 hours
410. Labor Problems	5 hours
432. International Economic Relations	5 hours
433. Business Cycles	5 hours
502. Comparative Economic Systems	5 hours

* Economics 310 and 312 are prerequisites for all courses in economics excepting statistics. The order of selection of the courses required can be fitted into the individual student's program.

It is suggested that majors in economics select minors from related disciplines. For those who are able to master higher mathematics it is strongly suggested as an excellent aid in theory.

COURSES IN ECONOMICS**Undergraduate**

310. Principles of Economics. Credit 5(5-0)

This course surveys the general field of Economics, Prerequisite to all other courses in Economics.

312. Economic Problems. Credit 5(5-0)

This course gives detailed consideration to major areas in modern economic life. The implications of public ownership, monopoly, organized labor and business combinations are stressed. Prerequisite: Economics 310 or consent of instructor.

Econ. 315. History of Economic Thought.

Credit 5(5-0)

A survey of the history of economic thought from the Middle Ages to John M. Keynes. The course aims to show how, and under what conditions, the more important laws and theories became a part of the body of modern economics.

320. Consumer Economics.

Credit 3(3-0)

A course showing the importance of the consumer in the American economy, especially as a force for economic betterment; consumer problems of individuals are also discussed.

Econ. 321. Public Finance.

Credit 5(5-0)

An analysis is made of the way Federal, state and local governments obtain and spend their revenues. Tax theories, incidence and impact are covered. Factors influencing government fiscal policies.

843 334. Industrial Economic Analysis.

Credit 3(3-0)

Problems relating to the engineer's role as consultant on matters of investment and operations. Cost concepts, profit-volume relationships and analysis, treatment of make or buy decisions, renewal or replacement decisions, minimum cost problems, simple linear programming models. Prerequisites: Econ. 310, Math. 222, M.E. 205.

Econ. 407. Intermediate Economic Theory.

Credit 5(5-0)

Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools.

Econ. 408. Economic Theory.

Credit 5(5-0)

The theoretical treatment of economic problems as set forth by Alfred Marshall in his *Principles of Economics* with a comparison of pre-Marshallian and post-Marshallian analyses.

Econ. 409. National Income Analysis (Macroeconomics)

Credit 5(5-0)

An introduction to the modern theory of the determination of the level of income, employment, and prices; the various theories of money and interest; fiscal and monetary policy.

410. Labor Problems.

Credit 5(5-0)

An introductory course dealing with the efforts of working people to improve their relative position in the economy; the influence of unionism and of governmental participation are emphasized.

420. Money and Banking.

Credit 5(5-0)

A general survey of the role of banking in the economy; the nature of money and international exchange.

430. Statistical Methods in Social Science.

Credit 5(5-0)

An introduction to research methods; social statistics; analysis of methods used by social scientists.

Econ. 431. Advanced Statistics.

Credit 5(5-0)

Time series analysis; simple correlation for grouped and ungrouped data; advanced study of statistical inferences. These two courses in statistics cover the basic Civil Service requirements in statistics. Prerequisites: Economics 430.

Econ. 432. International Economic Relations.

Credit 5(5-0)

National specialization and international exchange. The history and significance of international trade among nations of the world.

Econ. 433. Business Cycles. Credit 5(5-0)

The general instability of capitalism and its causes. Seasonal fluctuations and the secular trend. Business cycle history and theories. The influence of the cycles on government fiscal policy.

Advanced Undergraduate and Graduate**501. Economic Understanding. Credit 3(3-0)**

An analysis of the institutional organization and functions of the American economy. Special references will be made to the state of North Carolina.

Econ. 502. Comparative Economics. Credit 5(5-0)

A description and analytical study of the various systems that have developed in different countries and at different times to organize the production and distribution of goods and services. Current systems and the cause of clashes are discussed.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

601. Labor and Industrial Relations. Credit 3(3-0)**602. Government Economic Problems. Credit 3(3-0)****COURSES IN GEOGRAPHY****Undergraduate****310. Principles of Geography. Credit 5(5-9)**

A survey of the principles of geography.

320. Regional Geography of Anglo-America. Credit 5(5-0)

A study of the geographic regions of the United States and Canada.

330. Resources and Industries of the United States. Credit 3(3-0)

A study of the physical resources of the United States and its possessions.

410. Economic Geography of Latin America. Credit 3(3-0)

The agricultural and industrial resources of Latin America, including the utilization of Negro labor, and the assimilation of African culture into Latin-American life.

420. Political Geography. Credit 3(3-0)

Theories of political geography; territorial changes and their political significance; problems in political unification; centralization and federation. Prerequisite: Political Science 211 or 310.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin on the Graduate School.

601. The Physical Universe. Credit 3(3-0)**602. Geology. Credit 3(3-0)****603. Geography of North America. Credit 3(3-0)****604. Conservation of Natural Resources. Credit 3(3-0)**

COURSES IN HISTORY**Undergraduate****Hist. 201. Ancient History. Credit 5(5-0)**

A one-quarter course covering the History of the Ancient World from the rise of civilization in Mesopotamia and Egypt through the fall of the Roman Empire.

Special emphasis will be given to Greece and Rome and the unfolding in their histories of the basic features of Western Civilization.

202. Medieval History. Credit 5(5-0)

A history of Europe in the middle ages. Prerequisite: History 201.

Hist. 203. Europe, 1500 to 1815. Credit 5(5-0)

A survey of European history from the Renaissance to the end of the French Revolution and Napoleonic Period.

204. Modern Europe. Credit 5(5-0)

A survey course dealing with major factors and movements in the history of modern Europe, growth of democracy and the expansion of Europe from 1815 to present. Lectures, collateral reading, special reports and map work.

220. History of the Negro. Credit 5(5-0)

This course includes a brief survey of the African background of the Negro, traces him from Africa to America; includes a study of his enslavement, with special emphasis on slavery in America, the Free Negro before 1860, abolition, and the Civil War with special emphasis on the part played by Negro troops, achievements since 1865, and forces in Negro progress.

238. History of North Carolina. Credit 3(3-0)

A general survey of North Carolina from colonial times to the present.

309. United States History From 1492 to 1860. Credit 5(5-0)

A survey of the social, political and economic forces resulting in the developing of the American Nation.

310. United States History From 1860 to 1957. Credit 5(5-0)

A survey and synthesis of economic, social and political forces affecting the American Nation during this period, emphasizing the rise and effects of large scale industry and the emergence of the nation as a great power.

312. History of Reconstruction. Credit 3(3-0)

The period from 1860 to 1877. The industrial and agricultural development, constitutional problems, the participation of the freedmen in reconstruction and the political issues of the period are studied thoroughly. Prerequisites: Hist. 230 and 310.

332. History of England. Credit 5(5-0)

A survey of the social and political development of England in the 16th, 17th, and 18th centuries.

Hist. 335. Contemporary History. Credit 5(5-0)

This course is primarily a study of world history from World War I to the present.

336. Contemporary Russian History. Credit 3(3-0)

A comprehensive treatment of the History of Russia since 1917: Prerequisite: History 320.

410. American Constitutional History. Credit 3(3-0)

A study of the constitutional development of the United States from the adoption of the constitution to the present time.

412. Contemporary American History. Credit 3(3-0)

An intensive study and analysis of important problems in American history since 1928. Emphasis is on methods of historical research and writing.

420. History of Latin America. Credit 3(3-0)

A study of the rise and development of the Latin-American nations. Prerequisite: 15 hours of history or consent of instructor.

422. History of Eastern Europe. Credit 3(3-0)

A general course in the history of Eastern Europe and the Balkins.

424. History of the Far East. Credit 3(3-0)

A survey of the economic and political development of the far eastern countries with emphasis on the twentieth century. Prerequisite: 15 hours of history.

Hist. 430. Seminar. Credit 3(3-0)

This course is designed to present the bibliography and literature in selected fields of history. It consists of readings, bibliography, and discussion of historical literature and interpretation.

Advanced Undergraduate and Graduate**501. The British Colonies and the American Revolution. Credit 3(3-0)**

The evolution of colonial institutions, growth of the American colonies, the American Revolution and its aftermath.

503. Economic History of the United States, 1787-1865. Credit 3(3-0)

A study of pre-industrial America with special emphasis on agriculture, banking and industry, commerce, and transportation.

504. Economic History of the United States Since 1865. Credit 3(3-0)

A treatment of the American economy in the industrial capitalism, financial capitalism, business organization and the relationship between government and business.

505. History of Nineteenth Century Europe. Credit 3(3-0)

A treatment of the history of Europe between the Congress of Vienna and the outbreak of World War I. Special attention is given to the development of ideologies such as liberalism, nationalism, and socialism. Due attention is also given to colonial expansion, economic growth, scientific progress and international conflict.

506. Europe Since 1914. Credit 3(3-0)

An account of Europe's history in the twentieth century. Special consideration is given to attempts at reconstruction, 1919 to 1939, the conflict of ideologies, World War II, and the issues and crises between East and West.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

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|------|--|---------------|
| 602. | The French Revolution and Napoleon. | Credit 3(3-0) |
| 605. | Recent United States Diplomatic History. | Credit 3(3-0) |
| 606. | Social and Political History of England from 1714 to 1832. | Credit 3(3-0) |
| 607. | Reconstruction, 1865-1877. | Credit 3(3-0) |
| 608. | United States in the Twentieth Century. | Credit 3(3-0) |
| 610. | The Soviet Union Since 1917. | Credit 3(3-0) |
| 612. | Contemporary History of the United States. | Credit 3(3-0) |
| 613. | Research in Social Science. | Credit 3(3-0) |

COURSES IN POLITICAL SCIENCE

Undergraduate

- | | | |
|---|--------------------------------------|---------------|
| 211. | Introduction to American Government. | Credit 3(3-0) |
| A treatment of the historical development and organization of the national government. | | |
| 310. | Federal Government. | Credit 5(5-0) |
| A general introductory course in the government of the United States designed to acquaint the student with the basic facts and principles of the organization and operation of Federal institutions, and to give a foundation for more advanced work in Political Science. Prerequisite: 15 hours of Social Science or consent of instructor. | | |
| 320. | State Government. | Credit 5(5-0) |
| A study of the structure and functions of state government in the United States and its relation to Federal and local governments. Prerequisite: 15 hours of Social Science or consent of instructor. | | |
| 322. | Municipal Government. | Credit 3(3-0) |
| An intensive study of the structure and problems of all areas of local government in the United States. | | |
| 410. | Party Politics and Pressure Groups. | Credit 3(3-0) |
| This course deals with modern political parties in the United States as instruments of popular government. An analysis is made of the role of parties in the formation of public opinion and its influence upon governmental action. | | |
| 422. | Current International Relations. | Credit 3(3-0) |
| A study of the relations among nations of the World since World War II. | | |

Advanced Undergraduate and Graduate

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|---|------------------------------|---------------|
| 501. | The Federal Government. | Credit 3(3-0) |
| A comprehensive treatment of American Federal Government. Basic elements, principles and philosophies are reviewed, as are the roles of the branches of the Government. Emphasis will be placed on the growth and impact of political institutions and ideas on the process of Government. Intensive readings, written and oral reports are required. | | |
| 502. | State and Local Governments. | Credit 3(3-0) |
| An intensive study of state governments of the United States. Emphasis will be placed on constitution, structure and function, finance and personnel, judiciary and law enforcement, organization and conduct of administrative programs, State relations with local government, and contemporary problems. Intensive readings and oral reports required. | | |

506. Research and Current Problems.

Credit 3(3-0)

Considered are: Fundamental concepts of Scientific Method of research; Effective research procedures; techniques and sources used in research and government; investigation of some current and recurrent problems inherent in Federalism and "States Rights"; individualism and collective action, free enterprise and governmental regulations.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

603. Government Finances.

Credit 3(3-0)

COURSES IN SOCIOLOGY**A CURRICULUM GUIDE SHEET FOR
SOCIOLOGY MAJORS AND MINORS**

The major in Sociology consists of a minimum of 50 quarter hours, thirty-three of which are listed below. In addition to these courses, the student must take Anthropology 201 (Introduction to Anthropology) and Econ. 330 (Social Science Statistics). The remaining 9 hours may be elected from Sociology courses not listed as required. Economics 310 may be included in this group.

Sociology 231 and 232 are prerequisites to all other Sociology courses. Economics 330 is prerequisite to Sociology 337. At least 30 hours including Economics 330 should be completed before taking Sociology 337.

Sociology majors should elect, when possible, courses in Economics, Psychology, and Political Science.

Required Courses

<i>Course No.</i>	<i>Credit Hours</i>	<i>Course Name</i>
Soc. 231	5	Principles of Sociology
Soc. 232	5	Principles of Sociology
Soc. 234	5	Social Disorganization
Soc. 235	3	Urban Sociology
Soc. 331	3	Marriage and the Family
Soc. 332	3	Minority Groups
Soc. 333	3	Social Psychology
Soc. 334	3	Sociological Theory
Soc. 337	3	Introduction to Social Research
Total Credit Hours	33	

Required for a Sociology minor: Thirty to thirty-five hours, including Sociology 231, 232, 234, and 337.

SOCIAL WELFARE MAJOR**Required Courses**

<i>Course No.</i>	<i>Credit Hours</i>	<i>Course Description</i>
Soc. 231	5	Principles of Sociology
Soc. 232	5	Principles of Sociology
Soc. 233	3	Introduction to Social Work

Soc. 234	5	Social Disorganization
Soc. 235	3	Urban Sociology
Soc. 331	3	Marriage and the Family
Soc. 332	3	Minority Groups
Soc. 333	3	Social Psychology
Soc. 337	3	Introduction to Social Research
Soc. 433	3	Techniques in Human Relations
Soc. 434	3	Community Organization
Soc. 435	3	Social Stratification

Undergraduate

231. Principles of Sociology. Credit 5(5-0)

Examination of the basic concepts and principles of sociology with emphasis on scientific analysis of culture, social organization and personality. Prerequisite to all other courses in Sociology.

232. Principles of Sociology. Credit 5(5-0)

Continuation of Sociology 231. Analysis and explanation of social groups and groupings, social stratification, social institutions, population trends, social processes. Required of all Sociology majors and minors.

233. Introduction to Social Work. Credit 3(3-0)

An introductory course dealing with the various areas, processes and functions of social work. The various services and resources which the community provides for the social welfare of its citizens and or which the social worker makes use in the practice of his profession. Also the philosophy and history of social welfare.

234. Social Disorganization. Credit 5(5-0)

A study of the collapse, stability or modification of various social institutions in a society in transition, and the impact of social change upon human personality and human groups. The role of social disorganization processes in social pathology, social change, and social progress.

235. Urban Sociology. Credit 3(3-0)

The interplay of demographic, ecological and cultural themes; emergence and structure-function of social organization and cultural foci in the city. Anomie, loneliness-in-the-crowd; depersonalization and individuality will be considered in the phenomenon or urbanization. Prerequisite: Sociology 231, 232.

331. Marriage and the Family. Credit 3(3-0)

A brief history of the various types of families with special attention to the monogamous family; marriage problems and family living; personality; courtship; family budgeting, divorce, planned parenthood. Open to non-sociology majors who have had social science 101, 102, and 103.

332. Minority Groups. Credit 3(3-0)

An examination of the composition, status, and relations of racial and ethnic groups in the United States and in the world.

333. Social Psychology. Credit 3(3-0)

Study of the development of human nature and personality, processes of group life, and collective behavior. Focuses upon the individual within the context of society.

334. Sociological Theory. Credit 3(3-0)

Chronological treatment of social theorists from Comte to the present day. The purpose of this course is to give the student a comprehensive background and a perspective for understanding the social thought of his own time.

335. Sociology of Underdeveloped Areas. Credit 3(3-0)

A study of the social processes in areas that have not kept abreast of the advancements in scientific and technological progress. Specific areas will be selected for careful investigation. Offered in alternate years.

336. Sociology of Education. Credit 3(3-0)

The structure of educational institutions as it is affected by society. Teacher, parents, children and officials and their interrelationships will be considered in the light of the power structure of education systems.

337. Introduction to Sociological Research. Credit 3(3-0)

Delineation of a research problem in sociology; surveys and uses of available sources of data; consideration of sampling procedures of sociological research; field methods of collecting original data; graphic presentation of statistical data. Prerequisite: Sociology 231, 232, 234, 235; Economics 330.

431. Readings in Sociology. Credit 3(3-0)

This is a reading course designed to help students satisfy requirements in specific areas of the field of sociology. By arrangement with the instructor, credit may be applied where deficiencies occur. Prerequisite 15 hours of sociology.

432. Industrial Sociology. Credit 3(3-0)

The sociology of industry; labor-management relations; Governmental regulation of industrial relations; the role of unions; power structure and power distribution; the organization man; and the industrial society are some of the topics to be considered in detail. Prerequisite 15 hours of sociology.

433. Techniques in Human Relations. Credit 3(3-0)

Consideration of various methods are employed in an effort to solve human problems. How groups react in specific social situations; accommodation, compromise and protest through legal, religious, civic and social organizations. Prerequisite, 15 hours of sociology.

434. Community Organization. Credit 3(3-0)

The application of sociology to practical problems of community organization. The use of community organizations as a tool for guiding changes, and as stabilizing influences in the established social order; an analysis of community work through various organizations, both formal and informal. Prerequisite: Sociology 231, 232, 233.

435. Social Stratification. Credit 3(3-0)

An investigation and analysis of the social differentiation between men and groups of men; the origin, nature and development of social stratification. Specific attention will be given to such topics as social mobility, social class, castes, estates and families as they are influenced by heredity, wealth, power, authority, position, race and "social mobility." Prerequisite 15 hours of sociology.

437. Social Institutions. Credit 3(3-0)

Analytical changes in human society from simpler people and tribal societies; the development and growth of the state, the emergence of law, and regulative organizations; the typical life cycle of institutions. Prerequisite 15 hours of sociology.

Advanced Undergraduate and Graduate**500. Crime and Delinquency. Credit 5(5-0)**

Nature and development of crime and delinquency; theories and research in the etiology of juvenile delinquency and criminal behavior; the treatment of offenders; rehabilitation programs. Open to seniors by permission.

501. Socialization and Culture. Credit 3(3-0)

A comparison of ethnographic and other research materials in the fields of psychology, sociology and anthropology on child rearing, personality development, and the learning of social roles. Examination of hypotheses relating early experiences to cultural behavior. Structure and ideological determinants of childhood experiences. Open to seniors by permission.

502. Current Economic and Social Problems. Credit 3(3-0)

A practical course in applied economics and sociology dealing with analysis of present trends in government, economics, industry, agriculture and the social implications of these trends. Open to seniors by permission.

503. History of Social Thought. Credit 3(3-0)

Treatment of social thought from early Greeks to the twentieth century; treats thought in terms of periods such as pre-Christian, Christian, Middle Ages and Renaissance.

505. Advanced Readings in American Sociology. Credit 3(3-0)

This course is designed to give special attention to American scholars in the area of sociology. Open to seniors by permission.

506. Population Problems. Credit 3(3-0)

Introduction to various phases of population study; special attention will be given to the population explosion and problems created by mankind-in-motion; various theories of population growth will be considered. Open to seniors by permission.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

600. Theories of Human Development and Interaction. Credit 3(3-0)

This course is open to graduate students who are majoring in sociology with a view to earning a graduate degree in sociology. Enrollment by permission.

607. Race and Ethnic Relations. Credit 3(3-0)

A study of race relations in America with specific emphasis upon the Negro in American society; a comparative analysis of human relations in America with those in selected countries.

INTER-DEPARTMENTAL MINOR IN RECREATION LEADERSHIP

Inter-departmental programs are designed to meet the needs of those students interested in the field of Recreational Leadership. The program cuts across departmental lines and utilizes the courses and resources of other departments and schools to balance and enrich the experiences for recreation minors.

Recreation Leadership Minor for Majors for Sociology. The department of Sociology and Physical Education cooperate in an inter-departmental minor in Recreational Leadership. The freshman-sophomore requirements

are approximately the same as for any bachelor degree program in the School of Education and General Studies. In the Junior and Senior years, course work is drawn from other departments and schools to balance and enrich the student's minor program.

SOCIAL SCIENCE SERIES

Social Science 101—World Civilization and Culture I
 Social Science 102—World Civilization and Culture II
 Social Science 103—Man and His Social Institutions
 Social Science 101, 102, 103 Nine credit hours

A study of the group life of man beginning with the original nature of man and tracing the processes of socialization and acculturation by which he acquires human nature. Emphasis is placed upon the numerous processes of human interaction and group interrelatedness, while the traditional division of social science into such special disciplines as history, anthropology, sociology, economics and political science is maintained. Required of all freshmen enrolled in a baccalaureate program.

MAJOR IN HISTORY

Freshman Year

Freshman Program of School of Education and General Studies

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Foreign Language 101, 102, 103	5	5	5
History 201, 202, 203	5	5	5
Education 201	3	—	—
Humanities 201, 202, 203	3	3	3
Physical Education	1	1	1
ROTC (Men) 221, 222, 223	2	2	2
Sociology 231	—	5	—
Economics 310	—	—	5
	19	21	21

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
History 204, 310, 332	5	5	5
History 309, 335, 312	5	3	3
Humanities 204	3	—	—
Political Science 211	—	3	—
Education 202	—	—	3
Psychology 203, 301	—	—	6
Minor	6-8	6-8	—
	19-21	17-21	17

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
History 410, 430	3	3	—
Geography 420	—	3	—
Education 501	3	—	—
or			
Psychology 302	—	3	—
Education 301, 307, 402	—	—	18
Minor	9-12	7-9	—
Electives	3	3	—
	18-21	19-21	18

MAJOR IN SOCIAL STUDIES**Freshman Year**

Freshman Program of School of Education and General Studies

Sophomore Year

Education 201	3	—	—
Foreign Language 101, 102, 103	5	5	5
History 202, 203, 204	5	5	5
Humanities 201, 202, 203	3	3	3
Physical Education	1	1	1
ROTC (Men)	2	2	2
Sociology 231, 232	—	5	5
	19	21	21

Junior Year

Economics 310, 312	5	5	—
Education 202	—	—	3
Geography 310, 320	5	—	5
History 309, 310	5	5	—
Humanities 204	3	—	—
Political Science 310, 320	—	5	5
Psychology 203, 301	3	—	—
Sociology 332	—	3	—
Minor	—	3	8
	21	21	21

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Education 501 or Psychology 302	—	3-3	—
Education 301, 307, 402	—	—	18
History 410	3	—	—
Minor	12	12	—
Electives	3-6	3-6	—
	18-21	18-21	18

MAJOR IN SOCIOLOGY**Option I*****Freshman Year**

Freshman Program of School of Education and General Studies.

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Foreign Language 101, 102, 103	5	5	5
Humanities 201, 202, 203	3	3	3
Physical Education	1	1	1
ROTC (Men)	2	2	2
Sociology 231, 232, 234	5	5	5
Anthropology 201, Sociology 235	5	—	3
Psychology 201	—	5	—
Electives	—	—	—
	19-21	19-21	18-20

* Designed primarily for students interested in becoming professional Sociologists. Students entering this curriculum should think in terms of eventual graduate study.

Junior Year			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Economics 310, 330	5	—	5
Humanities 204	3	—	—
Soc. 331, 332	3	3	—
Soc. 333, 334	—	3	3
Minor	6	3	6
Electives	3	5	3
	<u>20</u>	<u>14</u>	<u>17</u>

Senior Year			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Sociology 337	—	3	—
Minor	6	6	6
Electives	14	9	12
	<u>20</u>	<u>18</u>	<u>18</u>

MAJOR IN SOCIAL WELFARE**Option II*****Freshman Year**

Freshman Program of School of Education and General Studies.

Sophomore Year			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Foreign Language 101, 102, 103	5	5	5
Humanities 201, 202, 203	3	3	3
Psychology 201	5	—	—
Sociology 231, 232, 234	5	5	5
Sociology 233, 235	—	3	3
Physical Education	1	1	1
ROTC (Men)	2	2	2
Electives	—	—	—
	<u>19-21</u>	<u>17-19</u>	<u>18-20</u>

Junior Year			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Economics 310, 330	5	5	—
Humanities 204	3	—	—
Sociology 331, 332	3	3	—
Sociology 333	—	3	—
Anthropology 201	3	—	—
Psychology 304	—	—	5
Minor	6	3	6
Electives	—	6	9
	<u>20</u>	<u>20</u>	<u>20</u>

Senior Year			
<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Sociology 435, 337	3	—	3
Sociology 437, 433	3	—	3
Electives	6	6	6
Minor	6	12	6
	<u>18</u>	<u>18</u>	<u>18</u>

* This program is structured for students interested in careers in Social Welfare. It is hoped that students completing this curriculum will continue their training in a School of Social Work.

MINORS

Students majoring in the various social science disciplines are encouraged to select a minor field of concentrated study. A minor may but need not be selected in a related social science area. It shall consist of a minimum of 30 quarter hours. Students should consult with advisers before choosing a minor field.

Minimum Requirements for the Economics Minor

Economics 310—5 hrs.
Economics 312—5 hrs.
Economics 407—5 hrs.

Economics 420—5 hrs.
Economics 430—5 hrs.

The student should select at least one other course. For some cases Economics 407 (Intermediate Economic Theory) will be waived.

Minimum Requirements for History Minor

History 201—5 hrs.
History 202—5 hrs.
History 203—5 hrs.
History 204—5 hrs.

History 309—5 hrs.
History 310—5 hrs.
History 410—3 hrs.

Minimum Requirements for Social Studies Minor

History 203—5 hrs.
History 204—5 hrs.
History 309—5 hrs.
History 310—5 hrs.

Sociology 231—5 hrs.
Economics 310—5 hrs.
Political Science 310—5 hrs.

SCHOOL OF ENGINEERING



Department of Architectural Engineering

Department of Art

Department of Business

Department of Electrical Engineering

Department of Industrial Education

Department of Mathematics

Department of Mechanical Engineering

Department of Physics

SCHOOL OF ENGINEERING

J. M. MARTEENA, *Dean*

The School of Engineering includes, the Departments of Architectural Engineering, Electrical Engineering, Mechanical Engineering, Engineering Mathematics, Engineering Physics. Business, Fine Arts, and Industrial Education. This organization enables the school to offer vocational, scientific and engineering instruction to help prepare students to meet the needs of the people, of industry and of the various technical and professional fields.

The curricula offered include four-year courses of study leading to the Bachelor of Science degree as well as professional courses required by the State Department of Public Instructions for the teaching certificate in many fields.

To keep pace with the increasing demands of industry, society and progressive education, the school is rapidly improving its staff and expanding its facilities and physical plant.

ADMISSION TO THE SCHOOL OF ENGINEERING

The admission requirements are generally the same as those given for entrance to the freshman class. One and one-half years of algebra, one year of plane geometry and one-half year of solid geometry are required for students electing a curriculum leading to a B.S. degree in engineering, mathematics and physics. Students admitted with conditions in any subjects will be required to remove them during their freshman year.

ADVANCED STANDING

Students who have attended a college of approved standing will be given appropriate credit for work completed there, upon the presentation of the proper certificate to the Registrar, who will determine the credits which are transferable toward the curriculum which the student wishes to follow.

REQUIREMENTS FOR GRADUATION

The requirements for graduation in any division of the School of Engineering are the same as the General Graduating Requirements.

OUTLINE OF THE FIRST YEAR'S WORK OF ALL FOUR-YEAR CURRICULA IN ENGINEERING

In order to permit all students in the School of Engineering to find out definitely what courses they desire to pursue, the first year of all four-year curricula in engineering or industrial arts is made uniform.

An inspection trip to visit such industrial installations as a hydroelectric plant, a turbo-electric plant, a steel or aluminum manufacturing and fabrica-

tion plant, outstanding construction projects, etc., will be required for graduation in all curricula of engineering.

The inspection trip will be planned by the heads of the various departments of engineering for senior students and will take place during the Spring quarter of each year.

A special fee will be charged all senior students in engineering to cover expenses for this trip. See fees and expenses.

Course and No.	Freshman Year		
	Fall	Winter	Spring
Chemistry 101, 102, 103 <i>1611, 1612⁴</i>	5	5	5
Mathematics 111, 112, 113 <i>3611⁴, 3613</i>	5	5	5
English 101, 102, 103 <i>2401, 2402⁴</i>	5	5	5
Engineering Graphics, M. E. 101, 102 <i>3701³</i>	3	3	—
Descriptive Geometry, M. E. 103 <i>3702²</i>	—	—	3
Electives*	1	1	1
	19	19	19

DEPARTMENT OF ARCHITECTURAL ENGINEERING

WILLIAM A. STREAT, Jr. *Chairman*

It is the aim of the department of architectural engineering, through its curriculum and resources, to encourage and develop those students who exhibit creative ability and the ability to grasp and use scientific principles for professional careers in the art and science of building. The stronger emphasis is placed on the building sciences and provides professional training in materials and methods of construction and the analysis and design of building structures:

The freshman and sophomore years are devoted almost entirely to a program of general education which provides background in the social and physical sciences, and mathematics, and includes an introduction to the humanities, art, and introductory courses to the study of architecture.

The general objectives of the basic courses in architectural engineering are to provide background for upper level and more professional courses. The awareness of the many factors that influence building design, and the development of a sense of proportion in graphical representation are an important part of the initial training. The basic principles of design and the elements of material selection and their proper use are stressed. It is intended to develop a sense of structure and to develop the ability to apply basic principles of engineering to the scientific analysis and design of simple structural elements, with an aim toward proficiency in solving problems by methods that are presented. It is expected that drafting techniques will improve as course work progresses and that there will be a progressive development of sensitivity in regard to the complete architectural complex from the standpoint of its design and its proposed construction.

* Freshman and sophomore male students who are not veterans are required to enroll in military or air science each quarter of the freshman and sophomore years.

A considerable portion of the program in the junior years is devoted to basic engineering science. From this training coupled with previous educational preparation the student is expected, in the upper level courses of the fourth and fifth years, to show creativity in design and proficiency in the analysis and design of structural systems for buildings. Simulated practical experience is provided through laboratory work in production drawing during the senior year. The five year program provides an integrated learning experience with knowledge from other educational disciplines and leads to a bachelor of science degree in architectural engineering.

Program in Architectural Engineering

		Freshman			
Course and No.		Fall	Winter	Spring	
Chemistry 101, 102, 103	16114, 1612	5	5	5	
English 101, 102, 103	24014, 2402	5	5	5	
Mathematics 111, 112, 113	36114, 3613	5	5	5	
Social Science 101, 102, 103	28063, 2801	3	3	3	
Electives*		1	1	1	
		19	19	19	

		Sophomore			
Course and No.		Fall	Winter	Spring	
Architectural Engineering 201, 202, 203	3121, 3122	2	4	4	
Architectural Engineering 204		—	3	—	
Art 111, 113	3200, 3222	3	—	3	
Mathematics 221, 222, 223	36214, 3622	5	5	5	
Physics 201, 202, 203	38215, 3822	5	5	5	
Humanities 201	24343	3	—	—	
Electives*		2	2	2	
		20	19	19	

		Lower Junior			
Course and No.		Fall	Winter	Spring	
Architectural Engineering 301, 302, 303	3141, 3142	4	4	4	
Architectural Engineering 304, 305, 306	3143	3	3	3	
Architectural Engineering 307, 308	3145	—	2	2	
Architectural Engineering 309, 310, 311	3146	2	2	2	
Mechanical Engineering 311, 312, 313	3745	5	5	5	
Mechanical Engineering 200	3720	2	—	—	
Electives		3	3	3	
		19	19	19	

		Upper Junior			
Course and No.		Fall	Winter	Spring	
Architectural Engineering 401, 402, 403	31514, 3152	4	4	4	
Architectural Engineering 404, 405, 406	3153	3	3	3	
Architectural Engineering 407, 408	3154	3	3	—	
Architectural Engineering 409, 410, 411	3156	3	3	3	
Mathematics 331	36454	—	—	5	
Mechanical Engineering 301, 302	37413	3	3	—	
Mechanical Engineering 315	37674	—	—	3	
Mechanical Engineering 429	37692	2	—	—	
Field Trips		0	0	0	
		18	16	18	

* Freshman and sophomore male students who are not veterans are required to enroll in military or air science each quarter of the freshman and sophomore years.

Course and No.	316 ⁴ Senior 3162 ⁴	Fall	Winter	Spring
Architectural Engineering 501, 502, 503	3163	4	4	4
Architectural Engineering 504, 505, 506	3164	3	3	3
Architectural Engineering 507	3165	—	2	—
Mechanical Engineering 220	3130	—	—	3
Economics 310, 334	2840, M. E. 3743	5	3	—
Electives		3	3	6
		15	15	16

COURSES IN ARCHITECTURAL ENGINEERING

201. Introduction to Architecture. Credit 2(0-4)

Laboratory-Lecture Course. A first course for architectural engineering students; orientation to architecture, the use and care of drafting instruments, line and lettering techniques, introduction to architectural graphics. Prerequisites: Plane and Solid Geometry. (Not open to entering freshmen)

202. Architectural Projections Credit 4(0-8)

Laboratory-Lecture Course. Orthographic and auxiliary projections, surface intersections and development, oblique and isometric drawing, shades and shadows. Prerequisite: Architectural Engineering 201.

203. Architectural Elements: Credit 4(0-8)

Laboratory-Lecture Course. Perspective drawing, rendering techniques in pencil, pen and ink and color, study of architectural plan, elevation and section. Prerequisite: Architectural Engineering 202.

204. Architectural Sketching: Credit 3(0-6)

Studio Work. Drawing in line with pencil and other media, freehand drawing from still life and architectural subjects. Prerequisites: Architectural Engineering 201 and Art 111.

301. Architectural Design Credit 4(0-8)

Laboratory-Lecture Course designed to introduce the basic fundamentals of design and as they are applied to architecture. Influences on architecture, space relationships, form and the visible structure. Prerequisites: Architectural Engineering 203 and 204.

302. Architectural Design Credit 4(0-8)

Laboratory-Lecture course presenting a series of problems in the design of buildings having simple requirements. Space organization, structure and composition. Prerequisite: Architectural Engineering 301.

303. Architectural Design Credit 4(0-8)

Laboratory-Lecture Course presenting a series of problems in space organization and planning. Construction considerations and orientation. Prerequisite: Architectural Engineering 302.

304. History of Architecture Credit 3(3-0)

Illustrated Lecture. The early architecture and civilizations of Egypt, Western Asia, Greece, and Italy, including architectural developments by the Early Christian and Byzantine builders. Prerequisites: Humanities 201, and Architectural Engineering 203.

305. History of Architecture. Credit 3(3-0)

Illustrated Lecture. The architecture and civilizations of the Medieval period. Prerequisite: Architectural Engineering 304.

306. History of Architecture.

Credit 3(3-0)

Illustrated Lecture. The architecture and civilizations of the Renaissance, and the architecture and civilizations of the early Americas including selected examples of nineteenth century architecture. Prerequisite: Architectural Engineering 305.

307. Structural Elements.

Credit 2(1-2)

Lecture and Laboratory Work. Graphical and algebraic analysis of forces, truss stresses, moments of inertia, centroids. Prerequisite: Mechanical Engineering 311.

308. Theory of Structures.

Credit 2(1-2)

Lecture and Laboratory Work. Graphical and algebraic study of shears, bending moments and deflections. Forces on masonry structures, kerns, pressures and bending theory. Applications to design of simple structural elements. Prerequisite: Architectural Engineering 307.

309. Materials and Methods of Architectural Construction.

Credit 2(2-0)

Lecture. Methods of wood frame construction; manufacture and use of allied materials and the influence of building codes. Prerequisite: Architectural Engineering 203.

310. Materials and Methods of Architectural Construction.

Credit 2(2-0)

Lecture. Methods of masonry construction; manufacture and use of allied materials and the influence of building codes. Prerequisite: Architectural Engineering 309.

311. Materials and Methods of Architectural Construction.

Credit 2(2-0)

Lecture. Methods of fire resistive construction; manufacture of allied materials and the influence of building codes. Prerequisite: Architectural Engineering 310.

401. Architectural Design.

Credit 4(0-8)

Laboratory-Lecture Course presenting a series of problems for study of space analysis, space organization, form and function. Integration of design and construction methods, organization of structural components. Prerequisite: Architectural Engineering 303.

402. Architectural Design

Credit 4(0-8)

Laboratory-Lecture Course presenting a series of problems in the design analysis and organization. Economic and social considerations. Group planning, mass and orientation. Prerequisite: Architectural Engineering 401.

403. Architectural Design.

Credit 4(0-8)

Laboratory-Lecture Course presenting a series of problems in the design of buildings which may have more complex requirements. More detailed study and presentation to emphasize the complete architectural complex. Prerequisite: Architectural Engineering 402.

404. History of Architecture

Credit 3(3-0)

Illustrated Lecture. An analytical study of Modern and Contemporary Architecture. Prerequisite: Architectural Engineering 306.

405. Electrical Equipment of Buildings

Credit 3(3-0)

Lecture-Problems Course. Characteristics of electrical distribution systems, computation of electrical power requirements for buildings, theory and design of wiring systems and lighting systems for buildings, and the selection of electrical equipment. Prerequisites: Physics 202. Junior Classification.

- 406. Building Sanitation.** Credit 3(3-0)
Lecture-Problems Course. Principles of plumbing, including venting, drainage, demand and load calculations, water distribution, pipe sizing, storm drainage and sprinkler systems. Prerequisite: Junior Classification.
- 407. Reinforced Concrete Theory** Credit 3(3-0)
Lecture-Problems Course. Reinforced concrete theory as applied to building structures. Theory of design for beams, slabs and columns. Prerequisites: Architectural Engineering 308 and Mechanical Engineering 312.
- 408. Reinforced Concrete Theory** Credit 3(3-0)
Lecture-Problems Course. Kern loaded bending and heavy bending of reinforced concrete columns, footings and retaining walls. Continuity of reinforced concrete, and ultimate strength concepts. Prerequisite: Architectural Engineering 407.
- 409. Theory of Structures.** Credit 3(3-0)
Lecture-Problems Course. The elastic theory, bending in unsymmetrical sections, Mohr's circle of inertia, analysis and design of steel trusses, requisites: Architectural Engineering 308 and Mechanical Engineering 312.
- 410. Indeterminate Structures.** Credit 3(3-0)
Lecture-Problems Course. Statically indeterminate beams, frames, and trusses, analysis by methods of consistent deformation, moment areas, slope deflection, Williot-Mohr, and use of Maxwell's law of reciprocal deflections. Prerequisite: Architectural Engineering 409.
- 411. Indeterminate Structures.** Credit 3(3-0)
Lecture-Problems Course. Castigliano's theorems, methods of analysis by moment distribution. Plastic design for structural steel. Prerequisite: Architectural Engineering 410.
- 501. Architectural Production Drawings.** Credit 4(0-8)
Laboratory Course. Preparation of working drawings and details for wood frame buildings, including electrical, mechanical and structural drawings. Prerequisites: Architectural Engineering 303, 311, 405 and 406. Mechanical Engineering 315 and enrollment in Architectural Engineering 504.
- 502. Architectural Production Drawings.** Credit 4(0-8)
Laboratory Course. Preparation of working drawings and details for ordinary, unprotected non-combustible, and protected non-combustible construction, including electrical, mechanical and structural drawings. Prerequisite: Architectural Engineering 501, and enrollment in Architectural Engineering 505.
- 503. Architectural Production Drawings** Credit 4(0-8)
Laboratory. Preparation of working drawings and details for fire resistive construction, including electrical, mechanical and structural drawings. Prerequisite: Architectural Engineering 502, and enrollment in Architectural Engineering 506.
- 504. Structural Design.** Credit 3(2-2)
Lecture and Laboratory Work: Design of timber structures. Prerequisite: Architectural Engineering 409.
- 505. Structural Design** Credit 3(2-2)
Lecture and Laboratory Work: Design of steel structures. Prerequisite: Architectural Engineering 411.

506. Structural Design.

Credit 3(2-2)

Lecture and Laboratory Work: Design of Reinforced concrete and composite structures. Prerequisite: Architectural Engineering 408 and 411.

507. Professional Practice.

Credit 2(2-0)

Seminar. Procedures of professional practice, registration, ethics, professional services, contracts, bonds, liens, insurances, bidding procedures, supervision, and administration of construction operations; office management and accounting. Prerequisite: Upper Junior Classification.

Students will be required to attain a grade of at least "C" in each 300,400, and 500 series course.

DEPARTMENT OF ART

LEROY F. HOLMES, *Chairman*

The Fine Arts and their influences are inextricably bound up with the nature and meaning of living. Everywhere one turns, the presence and influence of art can be seen and felt.

The objectives of the department are to guide the student through carefully planned classroom, studio, and working experiences, to develop his aesthetic sensibilities, technical ability, and to broaden his general education. This basic preparation lays a foundation for careers as creative artists or art teachers.

The Art Department offers courses in two different but interrelated areas. One embraces art history and the other deals with the more creative aspects such as drawing, painting, and ceramics. In addition to these the student may receive instruction in anatomy, composition, poster design, and graphic arts. The four year program leading to the Bachelor of Science Degree in Fine Arts is designed to integrate studio major and academic courses. The fundamentals of art, coupled with work in other areas, insure an acquaintance with each field and from these the student may acquire skill and understanding of creative experience. Students must complete 216 quarter hours of credit for graduation. Of this total, a minimum of 67 quarter hours must be in art courses. No academic minor is required since the degree presupposes both a major and minor in art.

Suggested Program for Art Major**Freshman Year**

Course and No.	Fall	Winter	Spring
Art 111, 112, 113 ^{3200³, 3201, 3222}	3	3	3
English 101, 102, 103 ^{2401, 2402}	5	5	5
Chemistry 101, 102, Art 120 ^{1611, 1612, 3229}	5	5	3
Mathematics 111, 112, History 210 ^{500, SC}	5	5	5
Physical Education	1	1	1
Electives*	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

* Freshman and sophomore male students who are not veterans are required to enroll in military or air science each quarter of their freshman and sophomore years.

Sophomore Year

Course and No.	Fall	Winter	Spring
Art 114, 115, 116 ^{3224, 3225}	2	2	2
Art 217, 218, 219 ^{3226, 3227, 3}	3	3	3
French or German 101, 102, 103 ^{2502, 2503}	5	5	5
Mechanical Engineering 101, 102, 103 ^{3701, 3702}	3	3	3
Physical Education	1	1	1
Electives*	2	2	2
	16	16	16

Junior Year

Course and No.	Fall	Winter	Spring
Art 326, 327 ³²⁴⁰	—	2	2
Art 331, 341	2	3	—
Art 337, 338, 339 ^{3241, 3243}	3	3	3
Art 347, 348, 349 ^{3278, 3279}	3	3	3
English Elective	—	—	5
History 220 ²⁸²⁵	5	—	—
History 330 ²⁸⁵¹	—	—	5
Electives**	7	7	2
	20	18	20

Senior Year

Course and No.	Fall	Winter	Spring
Art 421 ³²⁶²	—	3	—
Art 423, 430 ^{3264, 3274}	3	3	—
Art 428, 429 ^{3269, 3270}	2	2	—
Health Education 234 ²⁷²⁰	3	—	—
History 320, 230, or 310 ²⁸²³	5	5	—
Electives**	4	5	15
	17	18	15

PROGRAM FOR ART MAJORS (ART EDUCATION)

Freshman Year

Course and No.	Fall	Winter	Spring
Art 111, 112, 113 ^{3200, 3201, 3222}	3	3	3
English 111, 112, 113 ^{2401, 2402, 4}	3	3	3
Mathematics 101, 102, 103 ^{3601, 3602}	3	3	3
Physical Education	1	1	1
Physical Science 101, 102, ^{1601, 4}	—	—	—
Biological Science 101 ^{1501, 4}	5	5	5
Social Science 101, 102, 103 ^{2800, 2801}	3	3	3
Electives*	1	1	1
	19	19	19

Sophomore Year

Course and No.	Fall	Winter	Spring
Art 114, 115, 116 ^{3224, 3225}	2	2	2
Art 217, 218, 219 ^{3226, 3227, 3}	3	3	3
Art 120 (Anatomy) ^{3228, 3}	2	—	3
Mechanical Engineering 101, 102, 103 ^{3701, 3702}	3	3	3

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

** Students electing teaching option will select required courses for state certification as listed under the Department of Education and Psychology

French or German 101, 102, 103	5	5	5
Humanities 201, 202	3	3	—
Physical Education	1	1	1
Electives*	2	2	2
	19	19	19

Junior Year

Course and No.	Fall	Winter	Spring
Anthropology 201	3	—	—
Art 326, 327	—	2	2
Art 331, 341	2	3	—
Art 337, 338, 339	3	3	3
Education 201, 202	3	3	—
Education 203, English 210	3	—	3
Psychology 201, 203	—	5	3
Electives	3	3	3
	17	19	14

Senior Year

Course and No.	Fall	Winter	Spring
Art 421	—	3	—
Art 423, 430	3	3	—
Art 428, 429	2	2	—
Art 501	3	—	—
Education 301, 310	—	3	5
Education 402	—	—	10
Health Education 234	3	—	—
Psychology 301, 302	3	3	—
Electives	3	3	3
	17	17	18

COURSES IN ART

Undergraduate

111. Freehand Drawing. Credit 3(0-6)

A study of the fundamental principles of drawing as a useful mode of visual expression. Selected problems involving basic considerations of line, mass and color are presented for analysis and laboratory practice.

112. Lettering and Poster Design. Credit 3(0-6)

A comprehensive study of the art of lettering with speedball pens, the principles of layout, poster construction, and general advertising.

113. Water-color Painting. Credit 3(0-6)

Provides a working knowledge of color both from the standpoint of its use and enjoyment. Various theories of color are analyzed along with drill on the techniques of water-color painting. Prerequisite: 111.

114. Art Appreciation. Credit 2(2-0)

An introductory course to the study of fine arts. Basic qualities of various forms of artistic expression are explained. Emphasis is placed on the application of art principles in everyday life.

115. History of Art. Credit 2(2-0)

A general introduction to the history of art beginning with an examination of Egyptian, Mesopotamian, Aegean, Greek, and Roman art in terms of their extant monuments and culminating with the climax of medieval art in the Gothic period.

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

116. History of Art.

Credit 2(2-0)

A continuation of art 115 with emphasis on the development of art from the Italian Renaissance to the present by means of analysis and comparison of works of representative artists.

120. Anatomy.

Credit 3(1-5)

A study of the human figure with emphasis on anatomy, body structure and human proportions, draped and undraped figures at rest and in action.

217. Beginning Design.

Credit 3(0-6)

An introduction to visual design based upon an analysis of the aims, elements, principles, and sources of design and their application in a variety of media.

218. Intermediate Design.

Credit 3(0-6)

A continuation of art 217 with emphasis on the expressive possibilities of the elements of design and on the development of the student's creative ability.

219. Advanced Design.

Credit 3(0-6)

A continuation of art 218, with consideration given to three dimensional as well as two dimensional problems. Students are encouraged in the experimental use of materials and are required to find individual and complete solutions to problems through the various stages of research, planning and presentation. Emphasis is placed on technical perfection and the development of professional attitudes.

326. History of Art.

Credit 2(2-0)

Art of the Italian Renaissance. The study of painting, sculpture, and architecture in Italy from 1300 to 1600.

327. History of Art.

Credit 2(2-0)

Art of the Northern Renaissance. A study of painting, sculpture, and architecture from 1400 to 1600 in the Netherlands, Germany, France, Spain, and England. Papers, reading assignments, and museum trips supplement lecture material.

331. Composition.

Credit 2(0-4)

A study of the basic principles of pictorial composition or designing the picture with definite consideration of the requirements of commercial art; drills in abstract arrangements of dark and light are given.

337. Elementary Ceramics.

Credit 3(1-5)

Study of the historical development, materials and processes, and structural forms as well as simple exercises in modeling in clay. Supplementary reading and laboratory practice is required. Fall.

338. Intermediate Ceramics.

Credit 3(0-6)

A continuation of art 337 with emphasis in studio techniques. Review of methods of hand-building; introduction of potter's wheel, casting and glazing. Each student is given experience in firing the kiln. Prerequisite: Art 337.

339. Jewelry and Metalwork.

Credit 3(0-6)

The design and technical essentials of jewelry making and metalwork.

341. Figure Drawing.

Credit 3(0-6)

A study of the human figure from life. A study of the full length figure with emphasis on proportion, action and modeling in full values.

347. **Oil Painting.** Credit 3(0-6)
Study of oil painting with emphasis placed on the technique of oil painting still life, landscapes and portraits.
348. **Oil Painting.** Credit 3(0-6)
A continuation of 347 with emphasis on the development of original themes. Prerequisite: 347.
349. **Oil Painting.** Credit 3(0-6)
A continuation of 348 with emphasis on originality of subjects and treatment. Prerequisite: 348.
421. **Commercial Art.** Credit 3(0-6)
The handling of various media used in commercial art—laboratory drills in sketching and rendering in pen and ink and wash. Prerequisite: 113.
423. **General Crafts.** Credit 3(0-6)
Introduction to craft processes, weaving, metalwork, leather, etc.
428. **History of Art** Credit 2(2-0)
Baroque Art. The study of painting, sculpture, and architecture in Italy, the Netherlands, France, Spain, and Germany from 1600 to 1800.
429. **History of Art.** Credit 2(2-0)
Modern Art. European and American art from 1875 to the present.
430. **Introduction to Graphic Arts.** Credit 3(0-6)
Introduction to printmaking processes. Production of prints in varied media, woodcuts, serigraphs, drypoint, etchings, and lithographs.

Advanced Undergraduate and Graduate

501. **Public School Art.** Credit 3(3-0)
Study of materials, methods and procedures in teaching art in the public schools. Special emphasis is placed on selection and organization of materials, seasonal projects, the lesson plan and correlation, lectures, demonstrations, assigned readings. Summer and Spring Quarters.
502. **Drawing and Painting for Advanced Undergraduate and Graduate Students.** Credit 3(0-6)
Study of basic consideration of line-form content-technique. Summer Quarter.
503. **Seminar In Art History.** Credit 3(3-0)
This course is a round table discussion with student reports. Prerequisite: Consent of the instructor.
504. **Studio Techniques.** Credit 3(0-6)
Lectures, demonstrations that illustrate and describe the properties and use of varied media. As a point of departure for individual expression, these techniques are analyzed and discussed.
505. **Advanced Ceramics.** Credit 3 3(0-6)
Advanced studio problems and projects in ceramics with emphasis on independent creative work. Opportunities for original research.
506. **Printmaking.** Credit 3 3(0-6)
Investigation of traditional and experimental methods in printmaking. Advanced studio problems in woodcutting, etching, lithography, and serigraphy.

507. Sculpture.

Credit 3 3(0-6)

Exploring methods of using various materials such as clay, plaster, and metals with emphasis on the design and production of sculpture.

508. Project Seminar.

Credit 3 3(0-6)

Advanced specialized studies in creative painting, design, and sculpture. By means of discussion and suggestions this seminar intends to solve various problems which might arise in each work. Prerequisite: Consent of the instructor.

DEPARTMENT OF BUSINESS

T. MAHAFFEY, *Chairman*

The curricula of the Department of Business are designed to develop students with abilities, attitudes, understandings and concepts essential for leadership in business, industry, education, and government. In addition to the basic lower level program required of all freshmen and sophomores, several fields of concentration are provided to meet the varying needs for specialization at the upper level for juniors and seniors. Students are required to include in their programs courses which will give them a broad liberal education directed toward preventing the narrowing effects of overspecialization. Though professional competence in one's major concentration in the field of business is of primary importance, the student should be stimulated to participate actively in community affairs. He should also be continuously made aware of and exposed to an atmosphere of gracious living.

To serve the youth of North Carolina and the nation, the Department of Business endeavors to achieve the following objectives:

1. To develop the abilities and concepts essential for leadership in business, especially in the field of major concentration.
2. To prepare for graduate study.
3. To provide an understanding of economic, political and social values necessary for effective leadership.
4. To maintain contacts with the many institutional publics through the departmental internship programs, clinics, workshops, meetings, institutes, and conferences. The cooperation of persons actively engaged in business, in the professions and in government is desirable in the development of a well-rounded student and in the solution of common problems.
5. To provide within the environment of business an introduction to the atmosphere of gracious living.

REQUIREMENTS FOR DEGREES

Students in the Department of Business who meet the general requirements of the College and who complete satisfactorily the chosen curriculum in the Department, are awarded degrees appropriate to their curricula. To be recommended for a degree from the Department of Business a student must: (1) attain a cumulative average of 2.00 or better on all courses undertaken, (2) attain a cumulative average of 2.00 or better on all business and economics core courses undertaken, and (3) attain a cumulative average of 2.00 or better in his major option. Each curriculum requires a minimum of 200 quarter hours of credit.

DEGREES OFFERED

The Department of Business offers curricula leading to the following degrees: Bachelor of Science in Business Administration, Bachelor of Science in Business Education and Bachelor of Science in Secretarial Science.

A two-year program in Secretarial Science leads to the degree of Associate in Science in Secretarial Science.

These programs and requirements become effective for (1) all students enrolling as freshmen in the fall quarter, 1963, (2) all students transferring from other colleges, (3) students previously enrolled in this college, in the fall quarter, 1965.

BUSINESS ADMINISTRATION

Required Business and Economics Core Courses in Business Administration

The following courses shall constitute the business and economics core courses upon which the student must attain an average of 2.00 or better.

Course	Description	Qtr. Hrs.
Mathematics 115 ✓	Mathematics of Business and Finance	5
Bus. Adm. 102	Introduction of Business	5
Bus. Adm. 306	Business Communication	3
Mathematics 218	Statistics	5
Bus. Adm. 308	Principles of Insurance	3
Economics 410	Labor Problems	5
Bus. Adm. 402	Personal Finance	3
Bus. Adm. 404	Internship	2
Economics 310, 312	Principles of Economics, Economic Problems	10
Sec. Sc. 101, 102, 103	Typewriting	6
Sec. Sc. 204	Business Machines	2

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Course and No.	Freshman Year		Winter	Spring
	Fall			
English 101, 102, 103	2401, 2402	5	5	5
Mathematics 101, 102, 115	3601, 3602, 3615	3	3	5
Secretarial Science 101, 102, 103	3301, 3302	2	2	2
Biol. & Phys. Sc., Bus. Adm. 102	3304	5	5	5
Physical Education	1	1	1	1
Electives*	1	1	1	1
	17	17	19	19

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

Sophomore Year

Course and No.	Fall	Winter	Spring
Accounting 201, 202, 203 <i>3321, 3322</i>	3	3	3
Social Science 101, 102, 103 <i>2800, 2801</i>	3	3	3
English 210, 332, Geography 330 <i>2848</i>	3	5	3
Art 114, Bus. Adm. 305, Sec. Sc. 204 <i>3325, 3334</i>	2	3	2
Humanities 201, 202 <i>2434, 2435</i>	3	—	3
Physical Education	1	1	1
Electives*	2	3	2
	<u>17</u>	<u>18</u>	<u>17</u>

ACCOUNTING OPTION

Students who satisfactorily complete the requirements of this curriculum will be prepared for accounting positions in business, industry, and government.

Freshman Year

Same as freshman year for business administration.

Sophomore Year

Same as sophomore year for business administration.

Junior Year

Course and No.	Fall	Winter	Spring
Bus. Adm. 301, 303, Mathematics 218 <i>3351 3624</i>	3	3	5
Bus. Adm. 302, 304 <i>3352</i>	3	—	3
Bus. Adm. 314, 306 <i>3359, 3350</i>	3	3	—
Accounting 301, 302, 303 <i>3341, 3343</i>	3	3	3
Accounting 304, 305 <i>3344</i>	3	3	—
Health Education 111 <i>22002</i>	3	—	—
Economics 310, 312 <i>2840, 2841</i>	—	5	5
	<u>18</u>	<u>17</u>	<u>16</u>

Senior Year

Course and No.	Fall	Winter	Spring
Bus. Adm. 401, Accounting 404, 405 <i>3361</i>	3	3	3
Bus. Adm. 308, 402, 404 <i>3354, 3379, 33752</i>	3	3	2
Accounting 402, Eco. 410, Elec. (Non Dept.)**	3	5	9
Accounting 403 <i>3342 2863</i>	—	3	—
Electives (Non Dept.)**	6	3	—
	<u>15</u>	<u>17</u>	<u>14</u>

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

** The student who is interested in the study of computer programming should elect courses in analytic geometry and at least two quarters of the calculus. It is strongly suggested that other students should elect a foreign language.

The following courses shall constitute the option in accounting upon which the student must attain an average of 2.00 or better:

<i>Courses</i>	<i>Description</i>	<i>Qtr. Hrs.</i>
Accounting 201, 202, 203	Principles of Accounting	9
Accounting 301, 302	Intermediate Accounting	6
Accounting 402, 403	Advanced Accounting	6
Accounting 304, 305	Cost Accounting	6
Accounting 303	Federal & State Income Tax Accounting ...	3
Accounting 404, 405	Auditing	6
Bus. Adm. 301	Principles of Marketing	3
Bus. Adm. 302, 303, 304	Principles of Business Law II III	9
Bus. Adm. 305	Principles of Management	3
Bus. Adm. 401	Business Finance	3
Bus. Adm. 314	Money & Banking	3
		<hr/> 57

GENERAL BUSINESS ADMINISTRATION OPTION

Students who satisfactorily complete the requirements of this curriculum will be prepared for executive positions in business, government and industry. They will also be prepared to establish and operate a business establishment of their own.

Freshman Year

Same as freshman year for business administration.

Sophomore Year

Same as sophomore year for business administration.

Junior Year

Course and No.	3340	3351	3624	Fall	Winter	Spring
Business Administration 301, 303, Math. 218				3	3	5
Business Administration 302		3352		3	—	—
Business Administration 314, 306, 304		3359	3350	3	3	3
Accounting 301, 302, Business Adm. 312		3358		3	3	3
Business Administration 311		3357		—	3	—
H. Ed. 111	220.02			3	—	—
Economics 310, 312	2840, 2841			—	5	5
Electives (Non Dept.)**				3	—	—
				18	17	16

Senior Year

Course and No.	3378 2863 3375 ²	Fall	Winter	Spring
Business Adm. 401, Econ. 410, B. A. 404		3	5	2
Bus. Adm. 308, 402, 410	3354, 3379, 3370	3	3	3
Soc. Sc., Bus. Adm. 411, 409	3371, 3369	3	3	3
Bus. Adm. 403	3365	3	—	—
Electives (Non Dept.)**		3	6	6
		15	17	14

** The student who is interested in the study of computer programming should elect courses in analytic geometry and at least two quarters of the calculus. It is strongly suggested that other students should elect a foreign language.

The following courses shall constitute the option in general business administration upon which the student must attain an average of 2.00 or better:

<i>Courses</i>	<i>Description</i>	<i>Qtr. Hrs.</i>
Accounting 201, 202, 203	Principles of Accounting	9
Accounting 301, 302	Intermediate Accounting	6
Bus. Adm. 311	Real Estate	3
Bus. Adm. 312	Advertising	3
Bus. Adm. 403	Salesmanship	3
Bus. Adm. 409	Personnel Administration	3
Bus. Adm. 410	Principles of Retailing	3
Bus. Adm. 411	Principles of Investment	3
Bus. Adm. 302, 303, 304	Principles of Business Law I, II, III	9
Bus. Adm. 305	Principles of Management	3
Bus. Adm. 314	Money and Banking	3
Bus. Adm. 401	Business Finance	3
Bus. Adm. 301	Principles of Marketing	3
		<hr/> 54

Business Administration

INSURANCE OPTION

Students who satisfactorily complete the requirements of this curriculum will be prepared for positions in the insurance business.

Freshman Year

Same as freshman year for business administration.

Sophomore Year

Same as sophomore year for business administration.

Junior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Bus. Adm. 301, 303, Mathematics 218 ³³⁴⁰ ₃₃₅₁ ³⁶²⁴	3	3	5
Bus. Adm. 302	3	—	—
Bus. Adm. 314, 306, 304 ^{3359, 3350, 3352}	3	3	3
Bus. Adm. 308, 309, 310 ^{3354, 3355, 3356}	3	3	3
Bus. Adm. 311 ³³⁵⁷	—	3	—
H. Ed. 111 ^{2700.2}	3	—	—
Economics 310, 312 ^{2840, 2841}	—	5	5
Electives (Non-Dept.)**	3	—	—
		<hr/> 18	<hr/> 16

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Bus. Adm. 401, Econ. 410, Bus. Adm. 404 ³³⁷⁸ ₂₈₆₃₃ ³³¹⁵²	3	5	2
Bus. Adm. 402, 407 ^{3379, 3367}	—	3	3
Bus. Adm. 403, 406, 409 ^{3365, 3366, 3369}	3	3	3
Bus. Adm. 405, 408 ^{3360, 3368}	3	3	—
Electives (Non Dept.)**	6	3	6
		<hr/> 17	<hr/> 14

** The student who is interested in the study of computer programming should elect courses in analytic geometry and at least two quarters of the calculus. It is strongly suggested that other students should elect a foreign language.

The following courses shall constitute the option in insurance upon which the student must attain an average of 2.00 or better:

<i>Courses</i>	<i>Description</i>	<i>Qtr. Hrs.</i>
Accounting 201, 202, 203	Principles of Accounting	9
Accounting 301, 302	Intermediate Accounting	6
Bus. Adm. 309	Life Insurance	3
Bus. Adm. 310	Property Insurance	3
Bus. Adm. 311	Real Estate	3
Bus. Adm. 403	Salesmanship	3
Bus. Adm. 405	Health Insurance	3
Bus. Adm. 406	Social Insurance	3
Bus. Adm. 407	Business Insurance	3
Bus. Adm. 408	Office Organization & Management	3
Bus. Adm. 409	Personnel Administration	3
Bus. Adm. 305	Principles of Management	3
Bus. Adm. 308	Principles of Insurance	3
Bus. Adm. 314	Money and Banking	3
Bus. Adm. 401	Business Finance	3
		<hr/> 54

BUSINESS EDUCATION

Required Business and Economics Core Courses in Business Education

The following courses shall constitute the business and economics core courses upon which the student must attain an average of 2.00 or better.

<i>Courses</i>	<i>Description</i>	<i>Qtr. Hrs.</i>
Mathematics 115	Mathematics of Business Finance	5
Bus. Adm. 102	Introduction to Business	5
Bus. Adm. 302, 303	Principles of Business Law	6
Bus. Adm. 306	Business Communication	3
Mathematics 218	Statistics	5
Economics 310, 312	Principles of Economics	10
Sec. Sc. 101, 102, 103, 104	Typewriting	8
Sec. Sc. 204	Business Machines	2
Sec. Sc. 404 or B.A. 404	Internship	2
		<hr/> 46

COMPREHENSIVE BUSINESS EDUCATION OPTION

Students who satisfactorily complete the requirements of this curriculum will be prepared to teach business subjects at the secondary school level. This curriculum meets the certification requirements of the State of North Carolina.

Freshman Year

Same as freshman year for business administration.

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Accounting 201, 202, 203 <i>3321, 3322</i>	3	3	3
Psychology 201, Economics 310, 312 <i>284, 2845</i>	5	5	5
Sec. Sc. 201, 202, 203 <i>3331, 3332</i>	3	3	3

3303 3334 2425				
2120	Sec. Sc. 104, 204, English 210	2	2	3
	Ed. 201, Psychology 203, 301 2322, 2340.00	3 (Ed. 2154)	3	3
	Physical Education	1	1	1
	Electives (Non-Dept.)	2	2	2
		<hr/>	<hr/>	<hr/>
		19	19	20

3340 Junior Year				
Course and No.	3351 3325 3624	Fall	Winter	Spring
Bus. Adm. 301, 303, Mathematics 218		3	3	5
Bus. Adm. 302, 305, Geography 330 2848		3	3	3
3350 Bus. Adm. 306, Education 202 21212		—	3	3
Accounting 301, 302 3341 3396		3	3	—
2341 Psy. 302, Bus. Ed. 436 or History 412 2875		—	3	3
Sec. Sc. 302, 303, 304 3347, 3348		3	3	3
Health Education 111 2700.2		3	—	—
Art 114 3224		2	—	—
		<hr/>	<hr/>	<hr/>
		17	18	17

21616 Senior Year				
(For Professional Block Taken Fall Quarter)				
Course and No.	3379 3359	Fall	Winter	Spring
Education 402, Bus. Adm. 402, 314		10	3	3
2140 Education 401, Bus. Adm. 410 3370		3	3	—
Sec. Sc. 403, 404 3373, 33742		—	3	2
3368 Bus. Adm. 408, English 332 24553		—	3	5
History 412 2875		—	3	—
Humanities 201 2434		—	—	3
		<hr/>	<hr/>	<hr/>
		13	15	13

(For Professional Block Taken Spring Quarter)				
Course and No.		Fall	Winter	Spring
Bus. Adm. 402, Ed. 402		—	3	10
English 332, Bus. Adm. 410, Education 301		5	3	3
Bus. Adm. 314, 408		3	3	—
Sec. Sc. 403, 404		3	2	—
Bus. Ed. 436		—	3	—
Humanities 201		3	—	—
		<hr/>	<hr/>	<hr/>
		14	14	13

The following courses shall constitute the option in comprehensive business education upon which the student must attain an average of 2.00 or better:

Courses	Description	Qtr.	Hrs.
Accounting 201, 202, 203	Principles of Accounting	9	
Accounting 301, 302	Intermediate Accounting	6	
Bus. Adm. 408	Office Management	3	
Bus. Adm. 410	Principles of Retailing	3	
Sec. Sc. 201, 202, 203	Shorthand	9	
Sec. Sc. 302, 303, 304	Transcription	9	
Bus. Adm. 301	Principles of Marketing	3	
Bus. Adm. 305	Principles of Management	3	
Bus. Adm. 314	Money and Banking	3	
Bus. Adm. 402	Personal Finance	3	
Sec. Sc. 403	Secretarial Training	3	

The following courses shall constitute the professional education courses upon which the student must attain an average of 2.00 or better for all business education options.

<i>Courses</i>	<i>Description</i>	<i>Qtr. Hrs.</i>
Education 201	Introduction to Education	3
Education 202	Philosophy of Education	3
Psychology 203	Adolescent Psychology	3
Psychology 301	Educational Psychology	3
Psychology 302	Tests and Measurements	3
Business Edu. 436 or 437	Methods of Teaching Skill Subjects or Methods of Teaching Basic Business Subjects	3
Education 301	Principles of Education	3
Education 402	Observation & Student Teaching	10
		<hr/> 31

To be eligible for Student Teaching, the student must have met the following requirements (both comprehensive business education and basic business education):

1. Have senior standing.
2. Have completed three-fourths of the number of hours required in the basic business and economics core courses.
3. Have completed three-fourths of the number of hours required in his subject matter option.
4. Have attained an average of 2.00 or better upon all work undertaken in the college, upon all professional education courses undertaken, and upon all courses undertaken in the subject matter option.
5. Possess a personality deemed necessary for successful teaching.

BUSINESS EDUCATION

BASIC BUSINESS EDUCATION OPTION

Students who satisfactorily complete the requirements of this curriculum will be prepared to teach basic business subjects at the secondary school level. This curriculum meets the certification requirements of the State of North Carolina.

Freshman Year

Same as freshman year for business administration.

Sophomore Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
3321, 3322			
Accounting 201, 202, 203	3	3	3
Psychology 201, Economics 310, 312	5	5	5
Education 201, Psychology 203, 301	3	3	3
Sec. Sc. 104, 204	2	2	—

3224	2425	2455			
Art 114, English 210, 332	2	3	5		
Physical Education	1	1	1		
Electives*	2	2	2		
	18	19	19		

Junior Year

3340	3351	3325	3624			
Course and No.	Fall	Winter	Spring			
Bus. Adm. 301, 303, Mathematics 218	3	3	5			
Bus. Adm. 302, 305, Geography 330	3	3	3			
Bus. Adm. 314, 306, Education 202	3	3	3			
Accounting 301, 302, Bus. Adm. 409	3	3	3			
Bus. Adm. 308, Bus. Ed. 437 or Hist.						
412, Psy. 302	3	3	3			
Humanities 201	3	—	—			
Health Education 111	—	3	—			
	18	18	17			

Senior Year

(For Professional Block Taken Fall Quarter)

2161	3373	3378			
Course and No.	Fall	Winter	Spring		
Ed. 402, Sec. Sc. 403, Bus. Adm. 401	10	3	3		
Education 301, Bus. Adm. 402, 403	3	3	3		
Bus. Adm. 410, 312	—	3	3		
Bus. Adm. 408, 404	—	3	2		
Hist. 412, Electives	—	3	3		
	13	15	14		

(For Professional Block Taken Spring Quarter)

Sec. Sc. 403, Bus. Adm. 404, Ed. 402	3	2	10
Bus. Adm. 402, 401, Education 301	3	3	3
Bus. Adm. 410, 403	3	3	—
Bus. Adm. 408, 312	3	3	—
Electives, Bus. Ed. 437	3	3	—
	15	14	13

The following courses shall constitute the option in basic business education, upon which the student must attain an average of 2.00 or better.

Courses	Description	Qtr. Hrs.
Accounting 201, 202, 203	Principles of Accounting	9
Accounting 301, 302	Intermediate Accounting	6
Bus. Adm. 308	Principles of Insurance	3
Bus. Adm. 312	Principles of Advertising	3
Bus. Adm. 401	Business Finance	3
Bus. Adm. 403	Principles of Salesmanship	3
Bus. Adm. 408	Office Management	3
Bus. Adm. 409	Personnel Management	3
Bus. Adm. 410	Principles of Retailing	3
Bus. Adm. 301	Principles of Marketing	3
Bus. Adm. 305	Principles of Management	3
Bus. Adm. 314	Money and Banking	3
Bus. Adm. 402	Personal Finance	3
Sec. Sc. 403	Secretarial Training	3

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

BUSINESS EDUCATION—MINOR TEACHING FIELDS

Students enrolled in other secondary school teaching curriculums may elect any one of the following business education minors:

1. Basic Business—37 quarter hours required

<i>Courses Required:</i>		<i>Qtr. Hrs.</i>
Accounting 201, 202, 203	Principles of Accounting	9
Accounting 301, 302	Intermediate Accounting	6
Bus. Adm. 302	Principles of Business Law I	3
Bus. Adm. 305	Principles of Management	3
Bus. Adm. 314	Money and Banking	3
Bus. Adm. 402	Personal Finance	3
Economics 310, 312	Principles of Economics	10

2. Bookkeeping—24 quarter hours required

<i>Courses Required:</i>		<i>Qtr. Hrs.</i>
Accounting 201, 202, 203	Principles of Accounting	9
Accounting 301, 302	Intermediate Accounting	6
Accounting 402	Advanced Accounting	3
Accounting 304	Cost Accounting	3
Bus. Adm. 408	Office Management	3

3. Stenography—26 quarter hours required

<i>Courses Required:</i>		<i>Qtr. Hrs.</i>
Sec. Sc. 101, 102, 103, 104	Typewriting	8
Sec. Sc. 201, 202, 203	Shorthand	9
Sec. Sc. 302, 303, 304	Transcription	9

4. Typewriting—8 quarter hours required

<i>Courses Required:</i>		<i>Qtr. Hrs.</i>
Sec. Sc. 101, 102, 103, 104	Typewriting	8

SECRETARIAL SCIENCE (Four-Year) Option

Students who satisfactorily complete the requirements of this curriculum will be prepared for secretarial positions in government, industry, and business.

The following courses shall constitute the business and economics core courses upon which the student must attain an average of 2.00 or better:

<i>Courses</i>	<i>Description</i>	<i>Qtr. Hrs.</i>
Mathematics 115	Mathematics of Business and Finance ..	5
Bus. Adm. 102	Introduction to Business	5
Bus. Adm. 302, 303	Principles of Business Law	6
Bus. Adm. 305	Principles of Management	3
Mathematics 218	Statistics	5
Bus. Adm. 314	Money and Banking	3
Sec. Sc. 404	Internship	2
Economics 310, 312	Principles of Economics	10
Sec. Sc. 101, 102, 103, 104	Typewriting	8
Sec. Sc. 204	Business Machines	2

Freshman Year

Same as freshman year for business administration.

Sophomore Year

Course and No.	3321, 3322	Fall	Winter	Spring
Accounting 201, 202, 203		3	3	3
3224 Art 114, Sec. Sc. 204	3334	2	—	2
3303 Sec. Sc. 104, English 210	2425	2	3	—
Sec. Sc. 201, 202, 203	3331, 3332	3	3	3
Social Science 201, 202, 203	2800, 2801	3	3	3
Physical Education		1	1	1
434, 2435 Humanities 201, 202, Eng. 332	2455	3	3	5
Electives (Women) (Non Dept.)		—	2	—
		17	18	17

Junior Year

Course and No.	3351, 3325, 3624	Fall	Winter	Spring
Bus. Adm. 301, 303, Mathematics 218		3	3	5
Bus. Adm. 302, 305, Geography 330	2848	3	3	3
Sec. Sc. 302, 303, 304	3347, 3348	3	3	3
Bus. Adm. 314, 306	3359, 3350	3	3	—
Economics 310, 312	2840, 2841	—	5	5
Health Education III	27602	3	—	—
Electives (Non Dept.)		3	—	2
		18	17	18

Senior Year

Course and No.	3378, 3368, 33742	Fall	Winter	Spring
Bus. Adm. 401, 408, Sec. Sc. 404		3	3	2
Bus. Adm. 312, 402, 410	3358, 3379, 3370	3	3	3
3354 Bus. Adm. 308, Sec. Sc. 403, Bus. Adm. 409	3373	3	3	3
3365 Bus. Adm. 403, History 412	2875	3	—	3
Electives (Non Dept.)		3	6	3
		15	15	14

The following courses shall constitute the major in secretarial science (4 years) upon which the student must attain an average of 2.00 or better.

Accounting 201, 202, 203	Principles of Accounting	9
Bus. Adm. 301	Principles of Marketing	3
Bus. Adm. 306	Business Communication	3
Bus. Adm. 402	Personal Finance	3
Bus. Adm. 308	Principles of Insurance	3
Bus. Adm. 401	Business Finance	3
Bus. Adm. 408	Office Management	3
Bus. Adm. 409	Personnel Administration	3
Bus. Adm. 410	Principles of Retailing	3
Sec. Sc. 201, 202, 203	Shorthand	9
Sec. Sc. 302, 303, 304	Transcription	9
Sec. Sc. 403	Secretarial Training	3

SECRETARIAL SCIENCE (Two-Year) PROGRAM

To be recommended for the degree of Associate in Science in Secretarial Science from the Department of Business a student must (1) attain a cumulative average of 2.00 or better on all courses undertaken, (2) attain a cumulative average of 2.00 or better on all business and economics core courses undertaken, and (3) attain a cumulative average of 2.00 or better in this option (2-year Secretarial Science Program).

Students who satisfactorily complete the requirements of this program will be prepared for junior secretarial positions in government, industry, and business.

Freshman Year

Course and No.	Fall	Winter	Spring
English 101, 102, 103 <i>2401, 2402</i>	5	5	5
Sec. Sc. 101, 102, 103 <i>3301, 3302</i>	2	2	2
Sec. Sc. 201, 202, 203 <i>3331, 3332</i>	3	3	3
Education 101 <i>2100</i>	0	—	—
Physical Education	1✓	1✓	1✓
Mathematics 101, 102, 115 <i>3601, 3615</i>	3	3	5
Biological and Physical Science	5✓	5	—
	19	19	16

Sophomore Year

Course and No.	Fall	Winter	Spring
Accounting 201, 202, 203 <i>3321, 3322</i>	3	3	3
Economics 310, 312, Bus. Adm. 102 <i>3304</i>	5	5	5
Sec. Sc. 302, 303, 304 <i>3347, 3348</i>	3	3	3
Sec. Sc. 104, Bus. Adm. 306, 408 <i>3350, 3368</i>	2	3	3
Sec. Sc. 204, English 210, Health Ed. 111 <i>2700</i>	2	3	3
Physical Education	1	1	1
	16	18	18

The following courses shall constitute the business and economics core courses upon which the student must attain an average of 2.00 or better.

Courses	Qtr. Hrs.
Mathematics 115—Mathematics of Business and Finance	5
Business Administration 102—Introduction to Business	5
Economics 310, 312—Principles of Economics	10
Secretarial Science 101, 102, 103, 104—Typewriting	8
Secretarial Science 204—Business Machines	2
	30

The following courses shall constitute the option in Secretarial Science (2 years) upon which the student must attain an average of 2.00 or better.

Courses	Qtr. Hrs.
Accounting 201, 202, 203—Principles of Accounting	9
Business Administration 408—Office Management	3
Secretarial Science 201, 202, 203—Shorthand	9
Secretarial Science 302, 303, 304—Transcription	9
Business Administration 306—Business Communication	3
	33

COURSES IN ACCOUNTING**Undergraduate**

- 201, 202, 203. Principles of Accounting.** Credit 3(3-0) each
Accounts and records peculiar to sole proprietorships, partnerships and corporations are developed. Prerequisite or concurrent: Economics 310.
- 301, 302. Intermediate Accounting.** Credit 3(3-0) each
Accounting principles of valuation in the preparation of the balance sheet and the income statement. Prerequisite: Accounting 203.
- 303. Federal and State Income Tax Accounting.** Credit 3(3-0)
Special reference to federal, state, and local taxes as they apply to individual taxpayers. Prerequisite: Accounting 203.
- 304, 305. Cost Accounting.** Credit 3(3-0) each
Principles underlying the determination of cost with emphasis on the use of information concerning cost in the control of certain business activities. Prerequisite: Accounting 203.
- 402, 403. Advanced Accounting.** 3(3-0) each
Considers advanced principles of accounting as applied to problems connected with revenue, agency and branch accounts and fiduciary operations. Prerequisite: Accounting 302.
- 404, 405. Auditing Principles.** Credit 3(3-0) each
Emphasizes audit procedures and techniques used to verify balance sheet and income accounts. Prerequisites: Accounting 302, 305.

COURSES IN BUSINESS ADMINISTRATION

- 102. Introduction to Business.** Credit 5(5-0)
Designed to familiarize the student with the functions and structure of business enterprise.
- 301. Principles of Marketing.** Credit 3(3-0)
Presentation of the fundamental principles, methods, and problems of marketing. Prerequisite: Economics 310.
- 302, 303, 304. Principles of Business Law.** Credit 3(3-0) each
Designed to give practical knowledge concerning the law of contracts, agency, negotiable instruments, property, partnerships, corporations, etc. Prerequisite: Economics 310.
- 305. Principles of Management.** Credit 3(3-0)
An examination of the principles underlying the organization and management of business enterprise. Prerequisites: Accounting 201, Economics 310.
- 306. Business Communication.** Credit 3(3-0)
Types of communication peculiar to the needs of business are studied. Prerequisite: Economics 310, Sec. Sc. 103.
- 308. Principles of Insurance.** Credit 3(3-0)
Attention is given to the principle types of insurance. Prerequisite: Economics 310.
- 309. Life Insurance.** Credit 3(3-0)
Examines the fundamentals of life insurance. Prerequisite: Bus. Adm. 308.

310. Property Insurance.

Credit 3(3-0)

Studies the important types of property insurance contracts. Prerequisite: Bus. Adm. 308.

311. Principles of Real Estate.

Credit 3(3-0)

Presents the fundamental economic aspects of real property with special attention given to the changing character of the urban economy and its effects on land values and land utilization. Prerequisite: Economics 310.

312. Principles of Advertising.

Credit 3(3-0)

Consideration is given to the use of advertising and advertising media in the sale of goods and services. Prerequisite: Bus. Adm. 301.

314. Money, Credit, and Banking.

Credit 3(3-0)

A treatment of the principles, functions, and value of money. Emphasis is placed on the banking organization with special treatment of the Federal Reserve System. Prerequisite: Economics 310.

401. Business Finance.

Credit 3(3-0)

Treats problems involved in the financing of business enterprise. Prerequisite: Economics 310.

402. Personal Finance.

Credit 3(3-0)

Deals with the problems of money management faced by each individual as a consumer. Special attention is given to credit, borrowing and saving money, bank relationship, etc. Prerequisite: Economics 310.

403. Principles of Salesmanship.

Credit 3(3-0)

The essential principles of effective selling are presented. Prerequisite: Bus. Adm. 301.

404. Internship.

Credit 2(1-10)

A field work program of observation and work in selected business firms. Designed to contribute materially to the total development of the student's educational experiences. Prerequisite: Senior standing.

405. Health Insurance.

Credit 3(3-0)

Deals with the principles, problems and coverages involved in disability insurance. Prerequisite: Bus. Adm. 308.

406. Social Insurance.

Credit 3(3-0)

Treats the means of providing for economic and social security. Prerequisite: Bus. Adm. 308.

407. Business Insurance.

Credit 3(3-0)

Consideration given to the insurance program of a successful business enterprise. Prerequisite: Bus. Adm. 308.

408. Office Organization and Management.

Credit 3(3-0)

Consideration is given to the supervision and control of office procedures. Prerequisite: Bus. Adm. 305.

409. Personnel Organization and Management.

Credit 3(3-0)

Deals with the principles involved in procuring and maintaining effective and satisfied employees. Prerequisite: Bus. Adm. 305.

410. Principles of Retailing.

Credit 3(3-0)

Examines the principles and practices of retail store organization and management. Prerequisite: Bus. Adm. 301.

411. Principles of Investment.

Credit 3(3-0)

Emphasizes the nature and types of investments. Prerequisite: Bus. Adm. 401.

412. Electronic and Automatic Data Processing For Business.

Credit 3(3-0)

Fundamentals of business data processing. The use of electronic computers and automatic machines in the area of accounting, economics, management, marketing and general business. The equipment and facilities of the Guidance Center Laboratory are utilized in the course. Three two-hour class periods per week. Prerequisites: Statistics, Cost Accounting or Intermediate Accounting.

COURSES IN BUSINESS EDUCATION**436. Methods of Teaching Skill Subjects.**

Credit 3(3-0)

Analysis and evaluation of objectives, materials and methods of teaching typewriting, shorthand, transcription and related office skills. Provision is made for observation and participation in demonstration teaching. Prerequisites: Education 301, Psychology 302.

437. Methods of Teaching Basic Business Subjects.

Credit 3(3-0)

Selection, organization, and evaluation of supplementary teaching materials and analysis of techniques in teaching bookkeeping, general business, business law, business structure, and elementary economics. Construction of teaching units, enrichment materials and lesson plans for effective teaching on the secondary level. Prerequisite: Education 301, Psychology 302.

COURSES IN SECRETARIAL SCIENCE**101. Typewriting I.**

Credit 2(0-5)

Designed to develop a working knowledge of the use of the typewriter toward final mastery of keyboard reaches with drills, simple problems, etc. Requirement: 30 GWAM.

102. Typewriting II.

Credit 2(0-5)

Further development of skill through typewritten reproduction of more difficult problem materials. Requirement: 50 GWAM. Prerequisite: Sec. Sc. 101.

103. Typewriting III.

Credit 2(0-5)

Emphasis on technical typewriting, tabulation reports, and other advanced practical applications. Requirement: 60 GWAM. Prerequisite: Sec. Sc. 102.

104. Typewriting IV.

Credit 2(0-5)

Emphasis on developing the highest possible skill in the use of the typewriter. Speed and accuracy are thoroughly emphasized through effective techniques of control. Requirement: 60 NWAM. Prerequisite: Sec. Sc. 103.

201. Gregg Shorthand I.

Credit 3(5-0)

Study of theory as outlined in Gregg Shorthand Manual (Simplified). Requirement: 60 WAM.

202. Gregg Shorthand II.

Credit 3(5-0)

Continuation of 201 (with added emphasis on dictation of simple letters and documents). Requirement: 70 WAM on new matter.

203. Gregg Shorthand III.

Credit 3(5-0)

Emphasis is placed on difficult dictation and transcription, speed tests, and reporting speeches. Requirement: 80 WAM on new matter.

204. Business Machines.

Credit 2(0-4)

Develops knowledge and skill in the use of equipment found in the modern office. Prerequisite: Sec. Sc. 103.

302. Transcription I.

Credit 3(0-5)

Designed to review techniques of and to coordinate the skills of typewriting, shorthand, and English and to promote desirable habits of performance. Requirement: The production of mailable transcripts. Prerequisite: Sec. Sc. 103.

303. Transcription II.

Credit 3(0-5)

Emphasis placed on advanced dictation take rates and transcription rates. Requirement: The production of mailable transcripts. Prerequisite: Sec. Sc. 302.

304. Transcription III.

Credit 3(0-5)

Speed building emphasis and further development of skill to take dictation and transcribe at maximum rates to satisfy the requirements of business. Requirement: The production of mailable transcripts. Prerequisite: Sec. Sc. 303.

310. Filing.

Credit 2(0-4)

Introduces the student to the basic systems of business filing.

403. Secretarial Training.

Credit 3(3-0)

Discusses the qualifications, duties and responsibilities of the secretary in the modern business office. Prerequisite: Senior Standing.

404. Secretarial Internship.

Credit 2(1-10)

A field work program of observation and work in selected business firms. Designed to contribute materially to the total development of the student's educational experiences. Prerequisite: Senior standing.

DEPARTMENT OF ELECTRICAL ENGINEERING

ARMAND RICHARDSON, *Chairman*

The courses offered in the Department of Electrical Engineering are designed to serve the following purposes:

1. To provide understanding of and comprehensive training in the important natural laws and concepts in the physical and engineering sciences.
2. To encourage the student to look for ways of correlating and integrating fundamental knowledge; to think clearly and logically; and to learn to apply his knowledge to new situations.
3. To develop skills in the proper methods of communication of ideas through use of language; to develop ability to portray ideas in drawings and sketches; and to develop facility in the use of mathematics.
4. To develop skills in the analysis and synthesis of electrical and electronic systems and to encourage originality and creative ability wherever possible.
5. To extend classroom work with laboratory experiences designed to:
 - (a) confirm theoretical concepts

- (b) develop facility in the use of measuring instruments
 - (c) give the student the chance to observe actual engineering devices in action
 - (d) develop the ability to work effectively in a group as both a leader and a member of the group in accomplishing specific engineering objectives
 - (e) gain additional facility in the use of the language of engineering.
6. To encourage the student to appreciate life-long learning, with completion of undergraduate study just one step in the process of continuous education.
 7. To prepare the graduate engineer to be a respected citizen in his community and to have an appreciation for such values as those termed social, artistic, and economic, which will help him become a worthy member of the profession.

Program for Electrical Engineering Major

Freshman Year

(See First Year's Curricula for Engineering) *3 Elective*

Sophomore Year

Course and No.	Fall	Winter	Spring
Mathematics 221, 222, 223 <i>3621, 3622</i>	5	5	5
Physics 201, 202, 203 <i>3821, 3822</i>	5	5	5
Electrical Engineering 224, 225, 226 <i>3424, 3425</i>	4	4	4
Mechanical Engineering 200 <i>3720</i>	—	2	—
Humanities 201, 202, 203 <i>2434, 2435</i>	3	3	3
ROTC	2	2	2
	19	21	19

Junior Year

Course and No.	Fall	Winter	Spring
Electrical Engineering 331, 332, 333 <i>3447, 3448</i>	3	3	3
Electrical Engineering 334, 335 <i>3449</i>	2	2	—
Electrical Engineering 336 <i>3450</i>	—	—	3
Electrical Engineering 344 <i>3452</i>	—	4	—
Mechanical Engineering 311, 312, 313 <i>3745</i>	5 <i>3746</i>	5 <i>3747</i>	5
Mathematics 231 <i>3645</i>	5	—	—
Economics 310 <i>2840</i>	—	—	5
*Electives	6	6	3
	21	20	19

Senior Year

Course and No.	Fall	Winter	Spring
Electrical Engineering 446, 447, 448 <i>3465, 3466</i>	4	4	4
Electrical Engineering 455, 456, 457 <i>3470, 3471</i>	4	4	4
Electrical Engineering 460, 461 <i>3474</i>	—	3	3
Electrical Engineering 434 <i>3460</i>	3	—	—
Mechanical Engineering 301, 302, 303 <i>3744, 3742</i>	3	3	3
Economics 334 <i>2843</i>	—	3	—
*Electives	3	3	3
	17	20	17

* Nine hours of electives must be in Social Studies. Social Studies 101, 102, 103 are recommended.

COURSES IN ELECTRICAL ENGINEERING**Undergraduate****224, 225, 226. Introduction to Electrical Engineering. Credit 4(3-3) each**

A first course for electrical engineering students; electric and magnetic concepts and units; motional electromagnetic forces; electric fields and forces; electrochemistry; introduction to electronics. Coordinated laboratory work. Corequisites: Phy. 203, Math. 221.

331, 332, 333. Electric Circuit Analysis. Credit 3(3-0) each

Fundamentals of linear circuit analysis; sinusoidal steady state; coupled circuit theory; balanced and unbalanced polyphase circuits; harmonic analysis and fourier series; transients; the laplace transform. Prerequisites: Math. 223, E.E. 226, or consent of instructor.

334, 335. Electrical Measurements. Credit 2(1-3) each

Instruments and techniques for measuring electrical and magnetic quantities; galvanometers, d-c bridges; potentiometers; a-c bridges; magnetic measurements; measurement of power. Prerequisite: E.E. 226 or Phy. 340.

336. Principles of Electromagnetic Fields. Credit 3(3-0)

The basic postulates of electromagnetism; the integral laws in free space; the differential laws in free space; static fields; time varying fields. Prerequisites: Math. 223, E.E. 332.

344. Basic Electronics. Credit 4(3-3)

Electron Ballistics; thermionic, high field, and photoemission as applied to vacuum tubes, semiconductors, gas-filled tubes, and specialized tubes; coordinated laboratory work. Prerequisites: E.E. 331, Math. 223.

421, 422, 423. Basic Electrical Engineering. Credit 4(3-3) each

Electrical engineering fundamentals and applications for non-electrical engineering students, a-c and d-c circuits and machinery; electron tubes and applications; electro-chemical processes; coordinated laboratory work. Prerequisites: Phy. 203, Math. 223.

434. Electrical Transients. Credit 3(3-0)

Transient and steady state solutions of electrical networks and electro-mechanical systems using the laplace transform, fourier integrals, and analogs. Prerequisites: Math. 231, E.E. 333, or consent of instructor.

445. Radio Circuits. Credit 4(1-6)

Special topics and laboratory work of special interest to the student; most of the work is given by the project method. Prerequisite: E.E. 344.

446, 447, 448. Electronic Engineering. Credit 4(3-3)

Principles of electronic circuits; rectifiers and filters; amplifiers; feedback and oscillatory systems; modulation and demodulation; wave shaping circuits; receiving and transmitting systems: Techniques using semiconductors, vacuum tubes, and gas-filled tubes are employed throughout the courses. Coordinated laboratory work with industrial applications and special projects. Prerequisite: E.E. 344.

451. Power Transmission Lines. Credit 4(4-0)

Long distance transmission of power; determination of distributed line parameters; general circuit constants and equations; circle diagrams as applied to long distance power lines. Prerequisites: E.E. 332, Math. 231.

452. Automatic Control Theory.

Credit 3(3-0)

The automatic control problem; review of operational calculus: typical control elements and their transfer functions; steady state and transient solutions of feedback control system differential equations; stability; Nyquist criterion for stability; types of servomechanisms and control systems, design principles. Prerequisites: E.E. 434, or the consent of the instructor.

455, 456, 457. Electric Machinery.

Credit 4(3-3) each

Principles of electric energy converters; application of circuit theory to electric apparatus; characteristics of transformers, direct-current machines, induction and synchronous machines, and power rectifiers and inverters; thermoelectric generators. Coordinated laboratory work. Prerequisite: E.E. 333.

460, 461. Electromagnetic Wave Theory.

Credit 3(3-0) each

Fundamental electronic concepts at ultra-high frequencies; analysis of transmission lines and networks; Maxwell's equations and their applications; reflecting phenomena; wave guides and radiating systems. Prerequisite: E.E. 336.

DEPARTMENT OF INDUSTRIAL EDUCATION

CHARLES W. PINCKNEY, *Chairman*

OBJECTIVES: The Department of Industrial Education offers training to prepare individuals for professional employment in two basic categories. First, it prepares teachers of industrial arts and vocational industrial courses for public school service and offers additional training to such in-service teachers. Second, it provides practical training to individuals interested in industrial and business employment in such work as sales, personnel, production line management, maintenance and estimating. The department's undergraduate program consists of two curricula leading to a Bachelor of Science degree in these respective fields and a minor curriculum leading to teacher certification in vocational industrial education.

INDUSTRIAL ARTS EDUCATION

Industrial arts, as a phase of secondary school offerings, provides learning experiences which assist boys and girls to understand the industrial, technical and consumer aspects of life today. The course work includes a study of changes made in materials to make them more useful and to problems attending these changes. Laboratory work in an industrial arts program is concerned with the processes of changing these materials to useful products.

College students who are interested in majoring in this area should have an active interest in industrial materials, processes and products in such areas as wood, metals, electricity and drafting. They should be challenged by experiences that develop technical skills and knowledge relating to labor and industrial occupations. A strong interest in working with high school youth is important to success in this field.

VOCATIONAL INDUSTRIAL EDUCATION

Vocational industrial education, as a phase of secondary school offerings, deals with training individuals for gainful employment in trade and industrial occupations. The program may be offered to youth and/or adults through day-trade, part-time or evening vocational classes.

College students who are interested in becoming a teacher of a trade in the state's public schools must have had two years working experience in that trade beyond the learning period. For such students our curriculum provides up to 18 quarter hours of professional courses in industrial education which will qualify him to teach in this area. (The higher classes of teacher certification require a college degree in addition to trade experience and professional courses in industrial education.)

A high interest in the trade and in working with people is necessary for success in this field.

This minor curriculum is selected from such courses as follows:

Principles of Vocational Education and Guidance	6 cr. hrs.
Materials Equipment and Shop Management	3 cr. hrs.
Foundations, History and Philosophy of Ind. Ed.	6 cr. hrs.
Trade Analysis, Teaching Problems and Methods in Ind. Ed.	12 cr. hrs.

INDUSTRIAL EDUCATION TECHNICAL OPTION

Persons interested in professional employment in vocations, other than teaching, that require a general technical background, may be prepared through this technical option curriculum. It provides broad general and technical training, depth of preparation in one technical area and the opportunity to select business courses related to the student's vocational choice.

The ability to communicate effectively, particularly industrial and technical literacy, and facility in working with people are necessary to success in this field.

OPPORTUNITIES: Opportunities for employment of graduates are very good in North Carolina and neighboring states. Graduates of Industrial Arts Education are also prepared to enter graduate schools should they desire to do further study.

GRADUATE STUDY: Opportunities are provided for qualified students to do graduate work leading to the Master of Science degree in Industrial Education. Courses are also provided for in-service teachers interested in upgrading and certificate renewal. For further information write the department or the Dean of the Graduate School.

INDUSTRIAL ARTS EDUCATION CURRICULUM

Freshman Year

Course and No.	Fall	Winter	Spring
English 101, 102, 103 ^{2401, 2402}	5	5	5
Biol. Science 101, Phys. Science 230 ^{1601, 1602}	5	5	5
Mathematics 101, 102, 103 ^{3601, 3602}	3	3	3
Social Science 101, 102, 103 ^{2800, 2801, 2802}	3	3	3
Mechanical Engineering 101, 102, 103 ^{3701, 3702}	3	3	3
Electives*	1	1	1
	20	20	20

Sophomore Year

Course and No.	Fall	Winter	Spring
Humanities 201, 202, 203 ^{2434, 2435}	3	3	3
Industrial Arts 221, 222, 223 ^{3522, 3523}	5	5	5
Industrial Arts 226, 227, 228 ^{3540, 3541}	3	3	3
Industrial Arts 231, 232, 233 ^{3526, 3527}	3	3	3
Industrial Arts 225, 224, 231 ^{3530, 3531, 3532}	3	3	3
Electives*	2	2	2
	19	19	19

Junior Year

Course and No.	Fall	Winter	Spring
Industrial Arts 111, 112, 113 ^{3520, 3521}	3	3	3
Industrial Arts 334, 335, 336 ^{3524, 3525}	3	3	3
Industrial Arts 338, 339, 349 ^{3542, 3560}	3	3	3
Industrial Education 332 ³⁵⁵³	—	—	3
English 210 ²⁴²⁵	—	3	—
Psychology 201 ²³²⁰	5	—	—
Physical Education Electives	1	1	1
Humanities 204 ²⁴⁵⁴	—	—	3
Electives	3	3	3
	18	16	19

Senior Year

Course and No.	Fall	Winter	Spring
Psychology 202, 301 ^{ED, 2154}	3	3	—
Industrial Education 441, 447 ^{3555, 3556}	3	3	—
Industrial Education 502 ³⁵⁸¹	—	3	—
Health Education 234 ²⁷²⁰	3	—	—
Education 301 ²¹⁴⁰	—	—	3
Education 402 ²¹⁶¹	—	—	10
Industrial Education 443 ^{3557, 3558}	—	3	—
History 310, Economics 310 ²⁸⁴⁰	5	5	—
Electives	3	3	3
	17	20	16

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

Suggested Program for Industrial Education Technical Option Major

Freshman Year

Course and No.	Fall	Winter	Spring
Mathematics 111, 112, 113 ³⁶¹¹⁺³⁶¹³	5	5	5
Chemistry 101, 102 ^{1611, 1612}	5	5	—
English 101, 102, 103 ^{2401, 2402}	5	5	5
Mech. Eng. 101, 102, 103 ^{3701, 3702}	3	3	3
Physical Education Electives	1	1	1
Elective*	1	1	1
Industrial Education 125 ³⁵³⁰	—	—	3
	20	20	18

Sophomore Year

Course and No.	Fall	Winter	Spring
Industrial Arts 221, 222 ³⁵²²	5	5	—
Industrial Arts 231, 232, 233 ^{3526, 3527}	3	3	3
Industrial Arts 226, 227, 228 ^{3540, 3541}	3	3	3
Physics 201, 202 ^{3821, 3822}	—	5	5
Ind. Ed. 224 ³⁵⁵⁰	3	—	—
Physical Education Electives	1	—	1
Humanities 201 ^{2434, 2435}	—	—	3
Soc. Sc. 101, 102, 103 ^{2800, 2801}	3	3	3
Elective*	2	2	2
	20	21	20

Junior Year

Course and No.	Fall	Winter	Spring
English 210 ²⁴²⁵	—	—	3
Industrial Arts 334, 335, 336 ^{3524, 3525}	4	4	4
Business Electives ^{3571, 3572}	3	3	3
Industrial Education 333, Psy. 201 ^{2320, 2321}	5	3	—
Phy. Ed.	—	1	—
Technical Electives	3	3	3
Electives	3	3	3
	18	17	16

Senior Year

Course and No.	Fall	Winter	Spring
Technical Electives	5	5	3
Business and Economics Electives	3	3	3
Industrial Education 447 ³⁵⁵²	—	3	—
Art 111, 112, 113 ^{3200, 3201}	3	3	3
Estimating BC 335, BC 336 ^{4224, 4225}	3	3	—
Mech. Eng. 450 ³⁷³⁹	—	—	3
Psy. 403 ^{2362, 2363}	—	—	5
Electives	3	3	3
	17	20	20

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

COURSES IN INDUSTRIAL ARTS**Undergraduate**

111. **Introduction to Leather Craft.** Credit 3(0-6)
Fundamentals of materials, tools and skills used in leather craft.
112. **Designs and Assembling Leather Craft.** Credit 3(0-6)
Continuation of I.A. 111—advanced projects constructed.
113. **Carving and Stamping Leather Craft.** Credit 3(0-6)
Continuation of I.A. 112—advanced carving and stamping.
221. **General Woodwork.** Credit 5(1-8)
Care and use of hand tools, principles of planning, squaring and laying out work. Special projects assigned to students in accordance with the student's skill.
222. **General Woodwork.** Credit 5(1-8)
Emphasis on the practical operation of power tools. Prerequisite: I.A. 221.
223. **Advanced Woodwork.** Credit 5(1-8)
Construction of projects from drawings or blueprints. Care of power machines, saw filing, band saw brazing, sharpening and setting planer knives. Prerequisite: I.A. 222.
226. **Electric Wiring.** Credit 3(0-6)
A study of the fundamental principles of two-and three-wire circuits for light and power. The study and use of electrical wiring materials and electrical codes.
227. **General Electricity.** Credit 3(0-6)
Instruction and laboratory practice covering fundamental principles of direct and of alternating current equipment. Study of meters, motors, generators, armature winding and alternating current circuits. Study of home appliances an integral part of the course.
228. **Electricity (Radio).** Credit 3(0-6)
Theory and fundamentals of radio communication circuits, and power supplies. Testing of standard circuits, radio repair and code practice. Prerequisites: I.A. 226, 227.
231. **Industrial Arts Drawing.** Credit 3(0-6)
A course for acquisition of information and development of skills needed by a teacher in industrial arts drafting. Utilization and explanation of modern techniques for teaching drawing at various levels in high school or vocational school. Instruction in A.S.A. conventions, projections, revolutions, developments, lettering and pictorial representation with reference to machine and woodworking drawing. Prerequisite: M.E. 102.
232. **Industrial Arts Drawing.** Credit 3(0-6)
Problems in sheetmetal drawing, shading, technical sketching, production illustration and industrial arts design. Prerequisite: I.A. 231.
233. **Industrial Arts Drawing.** Credit 3(0-6)
Basic elements in the planning and construction of residential buildings. Problems in floor plans, elevations, details and perspective. Study of kitchen, living room, dining room, bath room and bed room layout. Prerequisite: I.A. 232.

330. Repair and Maintenance of Home Furniture. Credit 3(0-6)

A course designed to help homemaking teachers meet specific problems in the improvement and care of home furniture. Instruction in simple upholstery techniques and other processes using tools and accessories for home repair. Finishing and refinishing wood. Students encouraged to make an effort to provide their own work projects.

334. General Metals. Credit 4(2-4)

A general introduction to machine shop methods. Operation of the lathe, milling machine, drill press, shaper and grinding of cutting tools. Heat treating of metals. Projects involving basic operations of each machine. Special emphasis is put on machine maintenance and machine shop calculations as well as related information.

335. General Metals. Credit 4(2-4)

Fundamental machine and hand tool operations; care, use, and adjustment of sheet metal equipment; the development of simple patterns. Projects involving art metal, metal spinning, soft and hard solder, raising, chasing, seaming, piercing, etching, coloring and other processes useful to teachers of metal shops. Study of related technical information; sources, cost and specifications of equipment and supplies.

336. General Metals. Credit 4(2-4)

General activities in metal work including ornamental iron, tool forging, elementary foundry, bench metal, oxyacetylene welding and cutting. Study of related technical information; shop organization, courses of study, layout, equipment, operation, uses of instructional materials and supplies.

338. Woodturning. Credit 3(0-6)

Thorough drill in the cutting action of turning tools and methods of holding them. Projects in spindle and in face plate turning are selected for practice. Finishing and polishing on the lathe.

339. Upholstery. Credit 3(0-6)

Instruction in caning and seat weaving method of upholstering a plain board surface, methods of fastening webbing, burlap and its uses, upholstery with springs, hard-edge upholstery, and spring edge upholstery.

340. Wood Finishing. Credit 3(0-6)

Mechanical preparation of wood before staining, preparation and use of stains and the application of different classes of commercial stains, kinds of fillers—their preparation and application, refinishing.

348. Comprehensive Shop Projects. Credit 3(0-6)

General construction, repairs, maintenance work or advanced projects involving wood turning, carving, inlaying, upholstering and wood finishing.

349. General Shop. Credit 3(0-6)

Purpose and organization of general shops, instructional materials and procedures. Shop operating problems including personnel organization and equipment selection, project construction on a general shop basis.

Advanced Undergraduate and Graduate**506. Plastic Craft.** Credit 3(2-2)

For teachers of industrial arts, arts and crafts and those interested in plastics as a hobby. Operations in plastics analyzed and demonstrated; design, color, kinds and uses of plastics, how plastics are made and sold; vocational information. Projects suitable for class use constructed.

507. **Advanced Plastic Craft.** Credit 3(2-2)
A continuation of 506, including blow forming and internal carving.

508. **Handicrafts.** Credit 3(2-2)
For teachers of Industrial Arts, arts and crafts and those interested in craft work as a hobby. Covers the materials, tools and processes used in, and craft activities carried on in elementary and junior high schools that do not have specialized shops. Also of value to grade teachers who feel the necessity for more information regarding the materials, tools, and processes frequently employed in an activity-type program.

509. **Advanced Handicrafts.** Credit 3(2-2)
A continuation of 508. Instruction in advanced handicraft techniques.

510. **Advanced General Metals I.** Credit 3 Hrs. 3(2-2)
An advanced course in metalwork for teachers of industrial arts and others interested in metalwork as a hobby. Emphasis will center on art metal (including plating, finishes, etc.), advanced bench metal and sheet metal operations. Specifications of equipment, organization of instruction sheets, special problems, and materials will be covered as well as shop organization. Prerequisite: I.A. 336 or equivalent.

511. **Advanced General Metals II.** Credit 3 Hrs. 3(2-2)
An advanced course in machine tool operation for the industrial arts teacher who may want more specialization in one area of metalwork. Advanced operations on the lathe, shaper, milling machine, etc. Specifications of equipment, materials and organization of instruction materials. Prerequisite: I.A. 336 or equivalent.

512. **Advanced General Metals III.** Credit 3 Hrs. 3(2-2)
Special problems in metalwork. With the necessary prerequisites, the student may select problems in any area of general metals for special study. Construction of projects, special assignments, etc. will be made after the area of work is selected and after consultation with the instructor. Prerequisite: I.A. 510.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

608. **Advanced Furniture Design and Construction.** Credit 3(2-2)
609. **Electricity for Industrial Arts Teachers.** Credit 3(2-2)
611. **Graphic Arts Problems.** Credit 3(2-2)
612. **Laboratory Problems in Industrial Arts.** Credit 3(2-2)
613. **Comprehensive General Shop.** Credit 3(2-2)
614. **Advanced Drafting Techniques.** Credit 3(2-2)
623. **Construction and Use of Instructional Aids.** Credit 3(2-2)

COURSES IN INDUSTRIAL EDUCATION**Undergraduate****125. Foundations of Industrial Education. Credit 3(3-0)**

An orientation course for industrial education freshmen. Course requirements program operation, regulation. Familiarizes the student with the underlying philosophy, basic principles, and prevailing practices and terminology in Industrial Arts and Vocational Education.

224. Organization, Materials & Processes of Industry. Credit 3(3-0)

A study of the function, organization, materials and processes of industry. The course includes the study of techniques used by management to strengthen the efficiency of industrial operation.

231. Vocational Education. Credit 3(3-0)

Study of principles, practices, philosophy types and problems of federally aided vocational education programs. Special consideration given to agencies, their organization and responsibilities at the state and national levels.

332. Vocational Guidance. Credit 3(3-0)

The problems of vocational guidance, its beginning organization and administration in high schools. Special attention to guidance in the Junior and Senior high school as it relates to the work of Industrial Arts.

333. Shop Safety Education. Credit 3(3-0)

This course provides the necessary lesson units and methods of teaching school shop safety as well as plans for developing complete shop safety education programs.

441. Trade Analysis. Credit 3(3-0)

Methods of analyzing occupations for the purpose of securing teaching content and determining instructional order. Trade elements analyzed and instructional content. Methods of developing elements into courses and preparation of instruction sheets.

443. Methods of Teaching Industrial Education. Credit 5(5-0)

Methods of presenting related information, procedures in giving demonstrations with tools and machines, testing and grading shop work, organization of subject matter and lesson planning.

444. Observation and Student Teaching in Industrial Education. Credit 10(10-0)

Practice experience in conducting unit trade and industrial arts programs will be offered.

447. Materials, Equipment and Shop Management. Credit 3(3-0)

Discussion of problems of equipping and arranging trades and industrial arts shops and the care of tools and materials, safety and management.

Graduate and Advanced Undergraduate**502. Teaching Problems in Industrial Education. Credit 3(3-0)**

A general methods course for industrial education students. Problems involve analysis of objectives, curriculum content, text and reference books, teaching aids and devices, remedial instructions, cumulative records, storage systems, organizing class, teaching plans, safety programs, storage systems information about students, demonstration. Prerequisites: Ed. 341, I.A. 347.

504. History and Philosophy of Industrial Education. Credit 3(3-0)

Chronological and philosophical development of industrial education with special emphasis on its growth and function in American schools.

520. Diversified Occupations Programs.

Credit 3(3-0)

A course designed to give the prospective teachers of vocational education a knowledge of the basic concepts and processes of co-operative work in general, with special attention to diversified occupations.

521. Organization of Related Study Material.

Credit 3(3-0)

The principles of selecting and organizing both technical and general related instructional material for trade extension and diversified occupations classes.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

604. Supervision and Administration of Industrial Education. Credit 3(3-0)**605. Curriculum Laboratory in Industrial Education.** Credit 3(3-0)**606. Research and Literature in Industrial Education.** Credit 3(3-0)**624. Laboratory Planning for Industrial Shops.** Credit 3(3-0)**631. General Industrial Education Programs.** Credit 3(3-0)**632. Testing in Industrial Subjects.** Credit 3(3-0)**DEPARTMENT OF MATHEMATICS**

THEODORE R. SYKES, *Chairman*

PROGRAMS AND OBJECTIVES

The Department of Mathematics offers two programs leading to the bachelor degree.

The two programs are: the baccalaureate degree in engineering mathematics and the baccalaureate degree in teacher education. Each program requires a minimum of 220 quarter hours for graduation, of which, at least 54 quarter hours must be in the area of mathematics. (Mathematics 111 and 112 may not be used.)

All work used for the completion of these requirements must be approved by the Department of Mathematics and the Dean of the School of Engineering.

In addition, students enrolled in either program must pass a comprehensive examination in mathematics. This examination should be scheduled at least one quarter prior to graduation.

Objectives of the Engineering Mathematics Program

1. To prepare the student to do graduate study in applied mathematics.
2. To prepare the student for service in industry and government.
3. To prepare the student for independent investigations in the areas of science and mathematics.
4. To inspire the student with the desire for continued growth in areas of mathematical inquiry.

Curriculum for the Engineering Mathematics Program**Freshman Year**

Course and No.	Fall	Winter	Spring
Mathematics 111, 112, 113 ^{3611, 3613}	5	5	5
English 101, 102, 103 ^{2401, 2402, 2403}	5	5	5
Chemistry 101, 102, 103 ^{1611, 1612, 1613}	5	5	5
Mechanical Engineering 101, 102, 103 ^{3701, 3702, 3703}	3	3	3
Electives*	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

Sophomore Year

Course and No.	Fall	Winter	Spring
Mathematics 221, 222, 223 ^{3621, 3622}	5	5	5
Physics 201, 202, 203 ^{3821, 3822, 3823}	5	5	5
Foreign Language (French or German) ^{2500, 2501, 2502, 2503}	5	5	5
English 210, Humanities 201, 202 ^{2434, 2435}	3	3	3
Electives*	2	2	2
	<u>20</u>	<u>20</u>	<u>20</u>

Junior Year

Course and No.	Fall	Winter	Spring
Mathematics 331, 332, 333 ^{3645, 3646}	5	5	5
Mechanical Engineering 301, 302 ^{3741, 3742}	3	3	—
Physics 380 ^{3846, 3847}	—	—	5
Mathematics 218, 513, 514 ^{3624, 3667, 3668}	5	3	3
Physics 320 ^{3840, 3841}	—	3	—
Electives	6	4	6
	<u>19</u>	<u>18</u>	<u>19</u>

Senior Year

Course and No.	Fall	Winter	Spring
Mathematics 503, 504, 505 ^{3662, 3663}	3	3	3
Economics 310, 312 ^{2840, 2841, 2842}	5	5	—
Mathematics 511, Math. Elective, ³⁶⁶⁴	—	—	—
Mathematics 516 ³⁶⁶⁸	3	3	3
Physics 420, 421 ^{3841, 3871}	—	5	5
Electives	3	3	3
	<u>14</u>	<u>19</u>	<u>14</u>

Objectives of the Teacher Education Program

1. To prepare the student for graduate study in the area of mathematics and professional education.
2. To prepare the teacher of mathematics to present mathematics in a modern, meaningful, stimulating manner at the secondary level.
3. To prepare the teacher with sufficient quantity and quality of mathematics to provide competent counseling in the several opportunities available in mathematics.
4. To develop in the teacher an appreciation for mathematical rigor, and an appreciation of mathematics as an art as well as a tool.

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

5. To develop in the teacher an understanding of and an appreciation for the development of mathematics from antiquity to the present.
6. To inspire in the prospective teacher a desire for continued growth in areas of mathematical inquiry.

Curriculum for Mathematics Major (Teacher Education)

Freshman Year

Course and No.	Fall	Winter	Spring
Mathematics 111, 112, 113	5	5	5
English 101, 102, 103	5	5	5
Chemistry 101, 102, 103	5	5	5
Social Science 101, 102, 103	3	3	3
Physical Education	1	1	1
Electives*	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

Sophomore Year

Course and No.	Fall	Winter	Spring
Mathematics 221, 222, 223	5	5	5
Physics 201, 202, 203	5	5	5
Humanities 201, 202, 203	3	3	3
Biol. Sc. (Bot. or Zool.), Education 201, 202	4	3	3
Physical Education	1	1	1
Electives*	2	2	2
	<u>20</u>	<u>19</u>	<u>19</u>

Junior Year

Course and No.	Fall	Winter	Spring
Mathematics 218, 511, 512	5	3	3
Mathematics 502, Elective, Mathematics 400	5	3	2
Psychology 201, 202, 301	5	3	3
Foreign Language (French or German)	5	5	5
Economics 310, 312	—	5	5
	<u>18</u>	<u>19</u>	<u>18</u>

Senior Year

Course and No.	Fall	Winter	Spring
Mathematics 503, Elective	3	3	—
Mathematics 508, 513	5	3	—
Psychology 302, Education 301	3	—	3
Health Education, Education 308	—	3	5
English 210, Education 402	—	3	10
Electives	6	6	—
	<u>17</u>	<u>18</u>	<u>18</u>

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

COURSES IN MATHEMATICS

100. Remedial Mathematics. Credit 0(3-0)

Elementary properties of the real number system, basic algebra through quadratics. Required of students who fail the mathematics entrance examination. Prerequisites: 1 unit Algebra, 1 unit Plane Geometry.

101. Freshman Mathematics I. Credit 3(3-0)

Axiomatic systems, the real number system, basic algebra and trigonometry, introduction to analytic geometry and calculus. Prerequisites: 1 unit Algebra, 1 unit Plane Geometry and a passing score on the mathematics entrance examination.

102. Freshman Mathematics II. Credit 3(3-0)

Continuation of Mathematics 101. Prerequisite: Math. 101.

103. Freshman Mathematics III. Credit 3(3-0)

Continuation of Mathematics 102. Prerequisite: Math. 102.

111. College Algebra and Trigonometry—Part I. Credit 5(5-0)

The study of the abstract nature of mathematics and methods of proof and disproof, the real and complex number systems, rational functions, exponents, radicals, solution sets for quadratic equations and systems of simultaneous equations, matrices and inequalities. Prerequisites: 1 unit in Algebra, 1 unit Plane Geometry and a passing score on mathematics entrance examination.

112. College Algebra and Trigonometry—Part II. Credit 5(5-0)

Continuation of Math. 111. Algebraic, trigonometric and inverse trigonometric exponential and logarithmic functions and relations together with their applications. Prerequisite: Math. 111.

113. Analytic Geometry. Credit 5(5-0)

A thorough study of cartesian co-ordinates, plane curves, loci, polar co-ordinates and conic sections. Prerequisite: Math. 112.

Math. 115. Mathematics of Business & Finance. 5(5-0)

Simple interest, discount, partial payments, payroll, wages and commission accounts, discounts and mark-ups, retailing, taxes, distribution of ownership, transactions in corporate securities, insurance, compound interest, annuities, amortization and sinking funds. Prerequisites: Math. 111 or Math. 102.

214. History of Mathematics. Credit 5(5-0)

A survey of the development of mathematics by chronological periods, with biographical references, illustrations of national and racial achievements, and discussions of the evolution of certain important topics of elementary mathematics. Prerequisite: Math. 222.

216. Theory of Equations. Credit 5(5-0)

Methods of solving cubics, quartics and other higher algebraic equations. Methods of approximating roots, systems of equations, elements of determinants. Prerequisite: Math. 223.

218. Elementary Mathematical Statistics. Credit 5(5-0)

A general course covering fundamentals of statistics, central tendencies, variabilities, graphic methods, frequency distributions, correlations, reliability of measures, theory and methods of sampling, and the descriptive and analytical measures of statistics. Prerequisite: Math. 111.

221, 222, 223. Differential and Integral Calculus. Credit 5(5-0) each

A unified course covering the fundamentals of differential and integral calculus with applications. Prerequisite: Math. 113.

301. Introduction to the Programming of Digital Computers.

Credit 3 hrs. 3(3-0)

Flow charts, machine language, e.g. FORTRAN, preparation of cards and tapes, number systems, typical programs for solution on standard computers. Mathematical essentials for computer programming; e.g. approximation methods, error functions, iteration schemes, and numerical solutions of equations. Prerequisite: Math. 222.

331. Differential Equations.

Credit 5(5-0)

Solution of standard types of differential equations, with applications in electricity and mechanics. Prerequisite: Math. 223.

332. Mathematical Methods in Science and Engineering I.

Credit 5(5-0)

Fourier series and orthogonal functions, integration theory, operational and transform calculi, elements of complex variables, calculus of variation, several variables, special functions, elements of matrix theory. Prerequisite: Math 331.

333. Mathematical Methods in Science and Engineering II.

Credit 5(5-0)

Orthogonal functions, boundary value problems, operational calculus, solution of partial differential equations. Prerequisite: Math. 332.

400. Seminar in Mathematics.

Credit 2 hrs. 2(2-0)

Methods of preparing and presenting seminars, presentation of seminars in current developments in mathematics and/or topics of interest which are not included in formal courses. Required of mathematics majors in teacher education program. Prerequisite: Thirty hours of college mathematics.

Advanced Undergraduate and Graduate**500. Integrated Mathematics.**

Credit 3(3-0)

Definition and properties of elementary functions, integration theory, sequences and series. Graduate students who do poorly on the admissions examination must schedule this course. No credit toward a degree in mathematics.

501. Algebraic Equations for Teachers.

Credit 3(3-0)

Polynominals, linear systems, determinants and matrices methods of solving linear systems. No credit toward a degree in mathematics. Prerequisites: Thirty hours of college mathematics.

502. Modern Mathematics for High School Teachers.

Credit 3(3-0)

Elements of mathematical logic and deductive reasoning, the concept of number, ordinal and cardinal numbers, structure of the real number system. Prerequisites: Thirty quarter hours of college mathematics.

503. Intermediate Analysis I.

Credit 3(3-0)

A rigorous study of the fundamental principles of the calculus including properties of the real number system, limits, continuity, differentiability, integrability, sequences and series, functions of several variables. Prerequisite: Math. 223.

504. Intermediate Analysis II.

Credit 3(3-0)

Continuation of Mathematics 503. Prerequisite: Math. 503.

505. Intermediate Analysis III.

Credit 3(3-0)

Continuation of Mathematics 504. Prerequisite: Math. 504.

508. College Geometry.

Credit 5(5-0)

Properties of sets, operations on sets, elements of symbolic logic, properties of postulational system, the defects of Euclid's system, the Hilbert axioms, a general survey of the axioms of non-Euclidean systems. Prerequisite: High school geometry and thirty hours of college mathematics.

509. Mathematics for Chemists.

Credit 5(5-0)

This course will review those principles of mathematics which are involved in chemical computations and derivations from general through physical chemistry. It will include a study of significant figures, methods of expressing large and small numbers, algebraic operations, trigonometric functions, and an introduction to calculus.

510. Arithmetic for Elementary Teachers.

Credit 3(3-0)

This course affords a background of the beginning numbers, concepts and counting, a study of various number bases, and fundamental processes and their application and problem solving. No credit toward a degree in mathematics.

511. Abstract Algebra I.

Credit 3(3-0)

Elementary properties of sets, Peano axioms and the construction of the natural number system, properties of the integers, integral domains, groups, rings, fields, vector spaces, lattices and partially ordered sets. Prerequisite: Thirty hours of college mathematics.

512. Abstract Algebra II.

Credit 3(3-0)

Continuation of Mathematics 511. Prerequisite: Math. 511.

513. Linear Algebra and Matrix Theory I.

Credit 3(3-0)

Real and complex finite dimensional vector spaces, conjugate spaces, theory of linear transformation, linear operations, matrices, canonical representations, infinite dimensional space with an introduction to functional analysis. Prerequisite: Math. 223.

514. Linear Algebra and Matrix Theory I.

Credit 3(3-0)

Continuation of Mathematics 513. Prerequisite: Math. 513.

515. Elements of Set Theory and Topology.

Credit 3(3-0)

Operations on sets, relations, correspondences, comparison of sets, functions, ordered sets, general topological spaces, metric spaces, continuity, connectivity, compactness, homeomorphic spaces, general properties of T-spaces. Prerequisite: Math. 223.

516. Mathematical Statistics.

Credit 3 hrs. 3(3-0)

Introduction to probability, distribution functions and moment-generating functions, frequency distribution of two variables, development of chi-square, student's "t" and "F" distributions. Prerequisite: Math. 223.

517. Methods of Applied Statistics.

Credit 3 hrs. 3(3-0)

Presents the bases of various statistical procedures. Applications of normal, binomial, Poisson, chi-square, student's "t" and "f" distributions. Tests of hypotheses, power of tests, statistical inference, regression and correlation analysis and analysis of variance. Prerequisite: Math. 218.

518. Mathematics of Life Insurance.

Credit 3(3-0)

Probability, mortality table, life insurance, annuities, endowments, computation of net premiums, evaluation of policies, construction and use of tables. Prerequisite: Math. 218.

519. Numerical Computation. Credit 3(3-0)
(Formerly 504.)

Interpolation, numerical solution of equations, approximations, numerical integration, construction of tables.

520. Vector Analysis. Credit 5(5-0)

A study of the processes of vector analysis, with a treatment of the vector functions and operations as applied in theoretical work. Prerequisite: Math. 332.

521. Theory of Numbers. Credit 3 hrs. 3(3-0)

Divisibility properties of the integers, Euclid algorithm, congruences, diophantine equations, number-theoretic functions, and continued fractions. Prerequisite: Thirty hours of college mathematics.

Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

600. Theory of Functions of A Real Variable I. Credit 3(3-0)
601. Theory of Functions of A Real Variable II. Credit 3(3-0)
602. Theory of Functions of A Complex Variable I. Credit 3(3-0)
603. Theory of Functions of A Complex Variable II. Credit 3(3-0)
604. Projective Geometry. Credit 3(3-0)
605. Special Topics in Algebra. Credit 3(3-0)
606. Special Topics in Analysis. Credit 3(3-0)

DEPARTMENT OF MECHANICAL ENGINEERING

HARDY LISTON, JR., *Chairman*

The Department of Mechanical Engineering directs its activities toward the attainment of the following objectives:

1. To provide a broad program of studies which will prepare the student for gainful admission to employment in the field of mechanical engineering.
2. To provide the student with appreciations, understandings and fundamental information in the engineering sciences and of their relationships in industrial applications.
3. To provide the student with background and professional knowledge for the application of basic sciences in engineering.
4. To broaden the perspective of the student to know his responsibility to society and the engineering profession.

5. To challenge the student to increasing levels of competence in disciplines related to his chosen field.

The means of attaining these objectives are:

Lectures and class instruction supplemented by laboratory investigations designed to emphasize the engineering and economic principles involved, extensive use of visual aids and laboratory experiments employed to help the student get a clear understanding of many of the problems encountered in this area.

Specific areas of instruction include machine design, engineering analysis, heating and air conditioning, thermodynamics, physical metallurgy, manufacturing problems, heat engines, and fluid mechanics.

Program for Mechanical Engineering Major

Freshman Year

(See First Year Curricula for Engineering)

Sophomore Year

Course and No.	Fall	Winter	Spring
Physics 201, 202, 203 3821, 53822	5	5	5
Mathematics 221, 222, 223 3621, 43622	5	5	5
Social Science 101, 102, 103 2800, 2801	3	3	3
Economics 310 2840	5	—	—
Mechanical Engineering 200, 210 3720, 2	—	2	3
Mechanical Engineering 205, 220 3725, 3730	—	3	3
*ROTC or Elective	2	2	2
	20	20	21

Junior Year

Course and No.	Fall	Winter	Spring
Mechanical Engineering 301, 302, 303 3741, 3742	3	3	3
Mechanical Engineering 311, 312, 313 3745, 3	5 3746, 47	5	5
Mechanical Engineering 321, 320 3760, 3751	3	—	1
Humanities 201, 202, 203 2434, 2435	3	3	3
Mechanical Engineering 315 3767	3	—	—
Mathematics 331 3645	—	—	5
Economics 334 2843, ME 3743	—	3	—
*Electives	3	4	3
	20	18	20

Senior Year

Course and No.	Fall	Winter	Spring
Electrical Engineering 421, 422, 423 3441, 3442	4	4	4
Mechanical Engineering 421, 422, 423 3764, 65	3	3	3
Mechanical Engineering 411, 424, 412 3761, 2	3 3766	4 3762, 3	3
Mechanical Engineering 431, 432, 433 3770, 1	1 3771	1 3772	1
Mechanical Engineering 429, 428, 450 3769, 2	2 3768, 3	3 3739, 3	3
Mechanical Engineering 426 3753, 3	3	—	—
Mechanical Engineering 441, 442, 443 3772, 1	1 3773, 1	1	1
*Electives	3	3	3
	20	19	18

* Electives may be selected from technical or non-technical fields related to Mechanical Engineering and will be subject to the approval of the junior and/or senior advisers.

COURSES IN MECHANICAL ENGINEERING**Undergraduate**

- 101. Engineering Graphics.** Credit 3(0-6)
Instrument practice; lettering; geometrical construction; projections; sections; auxiliary projections; revolution; pictorial drawing; intersection and development.
- 102. Engineering Graphics.** Credit 3(0-6)
Drawing of fasteners, springs and gears; detail and assembly drawings; tracing and reproduction methods. Prerequisite: M.E. 101.
- 103. Engineering Graphics.** Credit 3(0-6)
Representation of common geometrical magnitudes with points, lines, planes, and solids; concurrent noncoplanar forces; the solution of problems; advanced intersection and development.
- 200. Introduction to Engineering Computations.** Credit 2(1-2)
General features of computations; accuracy of approximate calculations; logarithms, scales, alignment charts, the slide rule. Presentation of data; technical reports. Prerequisites: Math. 112, M.E. 102.
- 205. Kinematics.** Credit 3(2-2)
A condensed course covering relative motions, velocities and accelerations of machine parts including linkages, cams and gears. Prerequisites: M.E. 102, Math. 113, Phys. 201.
- 210. Engineering Materials and Processes.** Credit 3(3-0)
Study of production methods and materials in engineering including castings, forgings, machine processes and finishing. The course will include lectures, visits to local plants and shops, audio visual aids, and standard reference data. Prerequisite: Chem. 101, M.E. 102, Math. 113.
- 220. Plane Surveying.** Credit 3(1-4)
The methods of using the compass, transit, tape and level in making plane surveys. Lectures and field work. Elementary stadia work. Prerequisite: Math. 112.
- 301. Thermodynamics I.** Credit 3(3-0)
A course in engineering thermodynamics including the fundamental principles of Energy Conversions, Thermometry, Specific Heats, The First and Second Laws of Thermodynamics, The Carnot Cycle, Fundamental Processes with Gases, Ideal Gases, Real Gases; Table and Nomographs. Prerequisite: Physics 202, Math. 223.
- 302. Thermodynamics II.** Credit 3(3-0)
A continuation of Thermodynamics I, including the Second and Third Laws of Thermodynamics and their applications to fundamental processes. Differential Equations, Nomographs, Cyclic Processes, Equated Energy Transforms, some equipment, flow charts. Prerequisite: M.E. 301.
- 303. Thermodynamics III.** Credit 3(3-0)
A continuation of Thermodynamics II and to include thermodynamic systems analysis and an introduction to heat transfer. Prerequisite: M.E. 302.
- 311. Mechanics I, Statics.** Credit 5(5-0)
Statics, analytical and graphic treatment of systems of forces, couples, stresses in frames and trusses; distributed forces, centroids, moments of inertia. Prerequisites: Physics 201, Math. 222.

312. Strength of Materials.

Credit 5(5-0)

Shear and bending moment diagrams, stresses in beams, shafts, and columns; combined stresses, deflection in beams, fiber stresses and their distribution; tension, compression, shear and torsion. Prerequisite: M.E. 311.

313. Mechanics II, Dynamics.

Credit 5(5-0)

Dynamics and kinetics, rectilinear and curvilinear motion, relative velocity and acceleration, work and energy, impact, moment of momentum. Prerequisite: M.E. 311.

315, 316. Heating and Air Conditioning.

Credit 3(3-0) each

Principles of heating and air conditioning and their applications to the design of heating and air conditioning systems; study of principal equipment; design, layout and controls employed in various types of systems, Prerequisite: Physics 202.

319. Introduction to Nuclear Engineering.

Credit 3(3-0)

A survey of the engineering applications of nuclear energy. The principles and practices of isotope separation, production of plutonium, and nuclear reactor operation and studied along with the peace-time uses of products and by-products of nuclear reactors. Major engineering problems involved in each phase of the study are defined and the special methods of approach indicated. Prerequisites: Physics 203. Math. 223.

320. Mechanical Engineering Laboratory I.

Credit 1(0-3)

Calibrating pressure, speed, temperature and power measuring instruments; the testing of fuels, lubricants, pumps, compressors, heating, ventilating, and refrigerating equipment. Prerequisites: M.E. 302, 315.

321. Manufacturing Processes.

Credit 3(2-2)

The basic processes of conversion of raw materials into producer and consumer goods. Dimensional control; cutting and forming methods; tooling; cost reduction techniques using jigs and fixtures in volume production; laboratory consisting primarily of demonstrations. Prerequisite: M.E. 210.

411. Fluid Mechanics.

Credit 3(3-0)

Principles of static and dynamic behavior of fluids with some applications to hydraulic machinery and structures. Prerequisite: M.E. 302.

412. Fluid Mechanics and Heat Transfer.

Credit 3(3-0)

Fluid Properties and definitions, fluid flow concepts and basic equations, viscous effects, frictionless compressible flow, flow in open channels. Conduction of heat in the steady state and unsteady state; electrical analog; heat transfer by convection; heat transfer by radiation; heat transfer by the combined effect of conduction, convection and radiation, heat transfer and fluid friction, mass transfer. Prerequisites: M.E. 303, 411.

420. Advanced Strength of Materials.

Credit 3(3-0)

Statically indeterminate problems in bending-various cases; strain energy methods in bending; curved bars; beams on elastic foundation; static properties under combined stresses—theories of failure; special topics such as fatigue, impact, creep, plates and shells, inelastic phenomena. Prerequisite: M. E. 312.

421. Machine Design.

Credit 3(3-0)

Review of the properties of materials commonly used in machine construction; elementary stress analysis; combined stresses; working stresses. Prerequisites: M.E. 205, 312, 313.

422, 423. Machine Design. Credit 3(2-2) each

Synthesis of mechanical systems and devices. Specification of systems; region of design; synthesis of elements in the complete analysis of the assembly. Project work. Prerequisite: M.E. 421.

424. Mechanical Vibration and Control. Credit 4(3-2)

Free, damped and forced vibrations. Vibration isolation mounts, dampers and absorbers. Electromechanical analogies. Control systems. Laboratory in vibration of machine elements. Instrumentation for measuring force and motion. Prerequisite: Phys. 202, Corequisite: M. E. 422.

426. Metallurgy. Credit 3(2-2)

The production, constitution, and properties of ferrous and non-ferrous engineering metals and alloys; effects of mechanical working and heat treatment; corrosion and its prevention. Prerequisites: Chem. 102, M.E. 210, 312.

428. Heat Engines. Credit 3(3-0)

Applications of thermodynamics and heat transfer in heat engines. Reciprocating and turbo-machinery; thermal and combustion engines. Working substances; energy conversion and control. Prerequisites: M.E. 303; Co-requisite M.E. 432.

429. Materials Testing Laboratory. Credit 2(1-2)

A fundamental laboratory course including standard test procedures for tension, compression, shear, torsion, hardness, and impact. Studies on iron, steel, other alloys, wood, brick, sand, gravel, cement, and concrete. Prerequisite: M.E. 312.

431, 432, 433. Mechanical Engineering Laboratory II, III, IV.

Credit 1(0-3) each

Advanced study and tests in the areas of power plants, heating and air conditioning, metallurgy, fluid flow, compressed air, fuels and combustion, lubricants, steam engines, turbines and internal combustion engines. Prerequisite: M.E. 320; Co-requisites: M.E. 411, 428, 412.

441, 442, 443. Mechanical Engineering Seminar I, II, III. Credit 1(0-2) each

Reports and discussions on special topics in mechanical engineering and related fields. Prerequisite: Senior standing in mechanical engineering.

450. Engineering Practice. Credit 3(3-0)

Communication, law, human relations and professional development in the practice of engineering. Development and use of communication tools, professional understanding and contract documents. Prerequisite: Eng. 102.

510. Theory of Elasticity. Credit 3(3-0)

Introduction; stress, strain; stress-strain relations; energy principles; special topics. Prerequisites: M. E. 312 or Math. 331.

519. Elementary Nuclear Reactor Theory. Credit 3(3-0)

A lecture course in the principles of chain reactors, slowing down of neutrons, neutron diffusion equations, space distribution of neutrons, conditions for criticality, reactor dimensions for simple geometries, elementary group theories, and time dependent reactor behavior. Prerequisite: Math. 331 and M. E. 319 or consent of instructor.

DEPARTMENT OF PHYSICS

DONALD A. EDWARDS, *Chairman*

The purposes of the courses offered by the Department of Physics are:

1. To train students desiring to meet the urgent need for physicists in industrial or civil service research laboratories, and to provide them with courses required for graduate study.
2. To train teachers of physics for the secondary schools.
3. To provide the fundamental and advanced courses required by majors in other areas.
4. To provide non-science students with experiences which will give a greater appreciation of the present and future importance of physics in an age of machines and atomic energy.

The major in Engineering Physics will supplement the minimum of courses outlined below by selecting electives from other courses in the School of Engineering, as directed by the Department of Physics. The requirement of 20 hours of German may be reduced by High School entrance credit in German.

Students desiring to teach physics will seek a major in Physics, and they should consult with this department before registration for the Freshman year; they should begin the study of physics with Physics 201 in the Sophomore Year.

Program for Physics Major

Freshman Year

Course and No.	Fall	Winter	Spring
Chemistry 101, 102, 103 <i>161141612</i>	5	5	5
Mathematics 111, 112, 113 <i>361143613</i>	5	5	5
English 101, 102, 103 <i>240172402</i>	5	5	5
Social Science 101, 102, 103 <i>280032801</i>	3	3	3
Physical Education	1	1	1
Electives*	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

Sophomore Year

Course and No.	Fall	Winter	Spring
Physics 201, 202, 203 <i>3821, 3822</i>	5	5	5
Mathematics 221, 222, 223 <i>362173622</i>	5	5	5
Education 201 <i>21207</i>	—	—	3
Psychology 201, 203 <i>23203, 2322</i>	5	3	—
Humanities 201, 202, 203 <i>2434, 2435</i>	3	3	3
Electives*	2	2	2
	<u>20</u>	<u>18</u>	<u>18</u>

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

Junior Year

Course and No.	Fall	Winter	Spring
Mathematics 231 <i>36454</i>	5	—	—
Physics 320, 340, 380 <i>38463, 3843, 3846</i>	3	3	5
Physics 370, 360 <i>38443, 3842</i>	—	3	5
Education 202, 203 <i>21212, 2122</i>	3	3	—
Psychology 301, 302 <i>23403, 2341</i>	—	3	3
Botany 101 <i>15074</i>	4	—	—
English 210, Humanities 204 <i>2425, 2454</i>	—	3	3
Electives	3	3	3
Physical Education	1	1	1
	19	19	19

Senior Year

Course and No.	Fall	Winter	Spring
Physics 387 <i>38483</i>	5	—	—
Physics 401, 402 <i>3821, 3</i>	3	3	—
Zoology 101, 102 <i>15124</i>	4	4	—
Education 301, 402 <i>21403, 21616</i>	3	—	10
<i>27202</i> Health Education 234, Education 311 <i>21503</i>	—	3	5
Electives	3	3	3
	18	13	18

Program for Engineering Physics Major

Freshman Year

Course and No.	Fall	Winter	Spring
Chemistry 101, 102, 103 <i>16114, 1612</i>	5	5	5
Mathematics 111, 112, 113 <i>36114, 3613</i>	5	5	5
English 101, 102, 103 <i>24014, 2402</i>	5	5	5
<i>0, 2801</i> Social Science 101, 102, 103 or M.E. 101, 102 <i>33701, 33702</i>	3	3	3
Electives*	1	1	1
	19	19	19

Sophomore Year

Course and No.	Fall	Winter	Spring
Mathematics 221, 222, 223 <i>36214, 3622</i>	5	5	5
Physics 201, 202, 203 <i>38215, 3822</i>	5	5	5
German 101, 102, 103 <i>2502, 2503</i>	5	5	5
Humanities 201, 202, 203 <i>2434, 2435</i>	3	3	3
Electives*	2	2	2
	20	20	20

Junior Year

Course and No.	Fall	Winter	Spring
Mathematics 331, 332, 520 <i>3645, 3646, 3669</i>	5	5	5
Physics 320, 340, 380 <i>38403, 3843, 3846</i>	3	3	5
Physics 370, 360 <i>38443, 3842</i>	—	3	5
German 205 <i>25293</i>	3	—	—
Economics 310, 312 <i>2840, 2841</i>	5	5	—
Engineering Electives or ROTC	3	3	3
	19	19	18

* Freshman and sophomore male students who are not veterans are required to enroll in air science or military science each quarter of their freshman and sophomore years.

Senior Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Physics 420, 421 ^{33861 33862}	5	5	—
Physics 387, 480 ^{33848 33867}	5	—	5
Physics 440, 441 ^{33864 33865}	—	5	5
Physics 401, 402, 403 ^{33871 33872}	3	3	3
Engineering Electives or ROTC	6	6	6
	<hr/> 19	<hr/> 19	<hr/> 19

COURSES IN PHYSICS**Undergraduate**

111, 112. Principles of Physics I, II. Credit 5(4-2) each

A two-quarter terminal course for non-science majors, including mechanics, properties of matter, heat, electricity and magnetism, wave motion, sound, light, and selected topics in Modern Physics. Prerequisite: Math 111.

201, 202, 203. General Physics, I, II, III. Credit 5(3-4) each

A study of the fundamental principles of mechanics, properties of matter, heat and thermometry, magnetism, direct and alternating current electricity, wave motion, sound, light, and atomic physics. For science and technical majors. Prerequisite: Math. 113.

320. Mechanics. Credit 3(3-0)

An intermediate course with special emphasis upon rotation, harmonic motion, gravitation, hydrodynamics, and viscosity. Prerequisites: Phys. 202 and Math. 222.

340. Electricity and Magnetism. Credit 3(3-0)

An intermediate course including electric fields and potential, D.C. circuits, chemical and thermal emf's dielectrics, meters, magnetic properties of matter, alternating current, electromagnetic waves, and electronics. Prerequisites: Physics 203, Math. 223.

350. Vibration and Sound. Credit 5(5-0)

Production, propagation, transmission and reception of sound. Applications to acoustics, mechanics, and electrical problems. Prerequisites: Physics 203, Math. 331.

370. Light. Credit 3(3-0)

Propagation, reflection, refraction of light, lenses and optical instruments, interference, diffraction, polarization, line spectra, thermal radiation, photometry, and color. Prerequisites: Physics 203, Math. 223.

360. Heat and Thermodynamics. Credit 5(5-0)

Includes equations of state, laws of thermodynamics, entropy, fluid flow, heat transfer, single and two-phase mixtures, and statistical mechanics. Prerequisite: Physics 203, Math. 223.

380. Introduction to Modern Physics. Credit 5(5-0)

An introductory course involving electromagnetic theory of radiation, kinetic theory of gases, specific heats, the electron, electronics, X-rays, spectra, radioactivity, nuclear physics, and cosmic rays. Prerequisites: Physics 203, Math. 223.

385. X-Ray Diffraction Analysis. Credit 5(3-4)

An introductory course with emphasis upon the powder method, including X-ray sources, crystal shapes, and determinations of unit cell parameters and atomic positions. Prerequisite: Physics 380 or special permission.

387. Solid State Physics.

Credit 5(5-0)

Structure and imperfections in crystals and metals, energy levels of metals, semi-conductors and their applications, insulators. Prerequisite: Physics 203 and preferably Physics 380.

401, 402, 403. Advanced Laboratory I, II, III.

Credit 3(0-6) each

A senior level course involving intensive study and careful performance of selected experiments in the various fields of physics. Prerequisites: Junior level courses in physics.

420, 421. Physical Mechanics I, II.

Credit 5(5-0) each

Includes motion of a particle, damped harmonic oscillator, central field motion, rotating coordinate systems, Fourier series in vibrating strings, Lagrange's equations. Vector analysis used. Prerequisites: Physics 320 and Math. 520.

440, 441. Electromagnetism I, II.

Credit 5(5-0) each

Includes AC and DC circuit theory, Gauss' Law, Poisson and Laplace equations, dielectric and magnetic materials, Maxwell's equations. Prerequisites: Physics 340 and Math. 520.

480. Particles of Modern Physics.

Credit 5(5-0)

An advanced study of cathode rays, positive rays, photons, X-rays, positrons, neutrons, and cosmic rays. Prerequisite: Physics 380.

Advanced Undergraduate and Graduate**501, 502. General Physics for Science Teachers I, II.**

Credit 3(2-2) each

For persons engaged in the teaching of science. Includes two hours of lecture-demonstration and one two-hour laboratory period per week. Both courses may be combined during a single quarter for double credit. For science teachers only.

540. Electricity for Science Teachers.

Credit 3(3-0)

Includes electric fields, potentials, direct current circuits, chemical and thermal emf's, electric meters, and alternating currents. For Science teachers only. Prerequisites: Physics 501, 502 or equivalent.

580, 581. Modern Physics for Science Teachers I, II.

Credit 3(3-0) each

An introductory course covering the usual areas of modern physics. Both courses may be combined during a single quarter for double credit. For science teachers only. Prerequisite: General Physics.

SC OF NURSING



SCHOOL OF NURSING

NAOMI W. WYNN, *Dean*

The program is designed to prepare the student for nursing based on sound principles of general education as well as nursing education with integration of these aspects planned for in the curriculum. A nursing program within the College organization provides not only for the acquiring of scientific knowledge and technical skills, but also for development in social responsibilities and general cultural attributes.

The program is planned to prepare the student for assuming expanding responsibilities in nursing, in inter-professional teams, and in community living. To achieve this goal, experiences will be provided to assist the student in developing technical skills, ability in communications and co-operative group endeavors, and in understanding physical, psychological, and social aspects of health and disease and their application in the solution of health problems.

THE PHILOSOPHY OF THE SCHOOL OF NURSING

The Faculty believes that professional nursing offers, as its unique contribution to human welfare, the understandings designed for use in the maintenance of well-being and the restoration of health, as determined by the health needs of the world. In recognition of the dynamics of social evolution, we encourage each individual to develop to his fullest capacity an understanding of the world in which he lives and to appreciate his opportunity to participate in its progression.

The faculty recognizes education as a universal occupation, and assumes responsibility for creating an environment conducive to continuing growth of the student. We ascribe to the belief that the education of the nurse should be based on a humanistic as well as a professional background. We believe that the student should be prepared to assume expanding responsibilities in professional nursing on interprofessional teams as in community and world affairs. Towards this, we accept only those students adjudged to possess the potentialities and capabilities for success.

OBJECTIVES OF THE SCHOOL OF NURSING

The program in nursing is designed to assist the student:

- a. To develop the ability to function with allied professional and community groups in meeting the health needs of people.
- b. To acquire the knowledge and skills essential to function effectively in hospitals, community agencies and the home.
- c. To develop understanding of human behavior and the ability to utilize this understanding in relationships with others.
- d. To develop an appreciation for the nursing profession and its role in society.
- e. To encourage awareness of the need for continuous self-development and the importance of further study.

PROMOTION AND GRADUATION

In order to remain in good standing after the freshman year, a student must maintain a cumulative quality point average of 2.0 or better in all nursing courses.

To be eligible for graduation, a student must present a "C" average for the whole curriculum.

Suggested Program for Nursing

<i>Course and Number</i>	First Year			
	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>	<i>Summer</i>
Chemistry 107, 108, 109	5	5	5	—
English 101, 102, 103	5	5	5	—
Zoology 101	4	—	—	—
Anatomy 307	—	5	—	—
Physiology 405	—	—	5	—
Nursing 101, 102, 103	1	3	4	—
Physical Education	1	—	—	—
Orientation	0	0	0	—

<i>Course and Number</i>	Second Year			
	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>	<i>Summer</i>
Bacteriology 201	5	—	—	—
Nursing 201, 202, 203, 204	8	8	8	8
Nutrition 123, 129	5	5	—	—
Sociology 231	—	5	—	—
Psychology 201	—	—	5	—
Sociology 331	—	—	3	—
Humanities 200	—	—	3	—

<i>Course and Number</i>	Third Year			
	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>	<i>Summer</i>
Nursing 310, 320, 340, 350	10	10	10	12
Child Development 133	5	—	—	—
Psychology 202, 205	—	3	5	—
Nursing 340, 350	—	—	4	—
Humanities 201, 202	3	3	—	—
English 201	—	3	—	—

<i>Course and Number</i>	Fourth Year			
	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>	<i>Summer</i>
Nursing 440, 420, 430	9	9	9	—
Health Education 234	—	—	5	—
Trends and Comprehensive Nursing 450	—	4	—	—
Sociology 244	3	—	—	—
Humanities (Elective)	—	—	—	—

COURSES AND COURSE DESCRIPTIONS

N101. Credit 1; N102. Credit 3; N103. Credit 4. **Introduction to Nursing.**

The series of courses "Introduction to Nursing" is intended to introduce the student to: (1) the historical and modern development of nursing, (2) the profession and its role, (3) the student's role in beginning to recognize and meet patient's needs.

This is a three quarter course for freshman students in a school of nursing offering a baccalaureate degree.

Methods of teaching will include those best suited to assist in obtaining the objectives of each area of the course.

N201, N202, N203, N204. Medical-Surgical Nursing. Credit 8 each.

This is a sequence of courses designed to enable the student to develop understandings and skills necessary in meeting the needs of selected patients with medical-surgical conditions. This includes planned lecture, laboratory and/or clinical experience. Emphasis is placed on the fundamentals of nursing care; its rationable and nursing measures involved.

N310. Medical-Surgical Nursing. Credit 10

A continuation of medical-surgical series with emphasis on conditions requiring surgical intervention and nursing care of selected patients.

N320. Obstetric Nursing. Credit 10

This course is basically designed to help the student acquire knowledge, attitudes and skills needed to give safe and effective nursing care to mothers and babies. It deals essentially with pregnancy, labor, delivery, and the puerperium with emphasis on the spiritual, psychological, social, as well as physical needs, of each mother and baby. It includes supervised practice in the clinical areas.

N330. Pediatric Nursing. Credit 10

Study of the child in health and disease from the preventive and curative aspects, including the communicable disease of childhood. Twelve weeks of instruction and supervised practice in pediatric nursing in the clinical areas.

N340. Public Health Nursing. Credit 4

A basic course in public health developed to orient the student to principles of public health administration, environmental sanitation, epidemiology, and biostatistics.

N350. Psychiatric Nursing.

A study of the dynamics of human behavior with emphasis on pathological manifestations and rehabilitative measures in classroom and clinical area for a twelve week period.

N420. Medical-Surgical Nursing. Credit 9

This is a continuation of the medical-surgical series with emphasis on comprehensive care of patients with medical conditions. Twelve weeks of clinical instruction is included.

N430. Medical-Surgical Nursing. Credit 9

This is a continuation of the medical-surgical series with emphasis on comprehensive care of patients with surgical conditions. Twelve weeks of clinical instruction included.

N440. Principles and Practice of Public Health Nursing. Credit 9

This is a basic course providing opportunity for the student to increase her understanding of the nature and principles of public health nursing and public health administration through the application of these principles in an organized local health department. Units of instruction are based on knowledge, attitudes and skills that are required in the practice of public health nursing. The role of the public health nurse in relationship to the total public health program will be explored through orientation, demonstration and supervision of the student in an official local health department.

N450. Trends and Comprehensive Nursing. Credit 4

This course is designed to include principles and problems related to the transition of student to practitioner. Emphasis will be placed on current trends, problem solving and managerial skills.

THE GRADUATE SCHOOL



THE GRADUATE SCHOOL

George C. Royal, Jr., Dean

Graduate education at The Agricultural and Technical College of North Carolina was authorized by the North Carolina State Legislature in 1939. The authorization provided for graduate training in agriculture, applied sciences and allied areas of study. An extension of the graduate program, approved by the General Assembly of North Carolina in 1957, provided for enlargement of the program to include teacher education, as well as such other programs of a professional or occupational nature as might be approved by the State Board of Higher Education.

Purpose

The Graduate School coordinates advanced course offerings of all departments within the academic schools of the College in which graduate courses are taught.

For the academically mature student The Graduate School offers a type of instruction consistent with the demands of contemporary society. Graduate study is particularly recommended for those students whose aptitudes and interests carry them beyond routine application. Students are expected to develop their powers of independent thought and to become familiar with the discipline of research. The Graduate School seeks: (1) to provide the requisite environment for its students by frequent and critical re-evaluation of the curricula; and, (2) to observe strict adherence to standards set forth by the faculties of the College as well as those of the appropriate accrediting agencies.

Degrees Granted

The Graduate School of The Agricultural and Technical College of North Carolina offers one degree, the Master of Science. This degree may be earned in the following fields:

1. Agricultural Education
2. Chemistry
3. Education
 - a. Administration and Supervision
 - b. Elementary Education
 - c. Guidance
 - d. Secondary Education—(The student may select one of the following areas for certification purposes.)
 - (1) Biology
 - (2) Chemistry
 - (3) English
 - (4) French

- (5) General Science
- (6) History
- (7) Mathematics
- (8) Social Science

4. Industrial Arts Education

Master of Science Programs in Agricultural Education, Education, and Industrial Education may enable students to become eligible for the following certificates issued by the North Carolina State Department of Public Instruction:

1. Graduate Elementary Certificate
2. Graduate Secondary Certificate
3. Principal's Certificate
4. School Supervisor

Admission to Graduate Study

Applicants for graduate study must hold a bachelor's degree from an educational institution of recognized standing. They should obtain application blanks from The Graduate School or from the Office of Admissions. With the application, two transcripts of all previous undergraduate and graduate work must be filed. To assure early processing, applications together with all supporting documents must be received by the College at least 10 days prior to a registration period.

Undergraduate Preparation. The undergraduate work of an applicant must be above average in quality, especially in the area in which he wishes to concentrate. In general, undergraduate grades below "B" average in the primary field of concentration are taken as evidence of unfitness for graduate work. They usually predict early academic difficulties if the student is permitted to enroll in graduate-level courses. Admission to study toward a degree will be denied, if the applicant failed to earn a minimum overall grade-point average of 2.6 on the 4.0 system or 1.6 on the 3.0 system in obtaining the undergraduate degree.

Provisional Admission. An applicant may be admitted to The Graduate School on a provisional basis if (1) his baccalaureate degree was earned from a non-accredited institution, or (2) his undergraduate preparation reveals course deficiencies that can be removed near the beginning of his graduate study.

Special Students. Admission to The Graduate School may be granted to applicants who wish to pursue a non-degree program by taking courses for self-improvement, renewal of Class A Primary, Grammar Grade, or High School Teacher Certificates. Such applicants must possess the baccalaureate

degree and meet the standards required for admission to a degree program. The utilization of credits earned as a special student, may only be applied to credit for a degree at the option of The Graduate School.

The Bulletin of The Graduate School

General requirements for the Master's degree, course descriptions, admission to degree candidacy, and other pertinent information about graduate study may be found in **The Bulletin of The Graduate School**.

THE TECHNICAL INSTITUTE



Department of Automotive Technology
Department of Building Construction Technology
Department of Drafting Technology
Department of Electrical Technology
Department of Mechanical Technology

THE TECHNICAL INSTITUTE

S. C. SMITH, *Dean*

The Technical Institute meets the growing demand for technically trained personnel in the expanding industries of North Carolina and throughout the country.

The institute was organized to offer technological training and a background in general studies to provide both the skills and intellectual development for the productive and intelligent citizen.

Curricula

The Technical Institute offers four two-year programs and one three-year program. An Associate Degree in Science is awarded for satisfactorily completing either of the courses.

Two-Year Programs

Automotive Technology

Drafting Technology

Electrical Technology

Mechanical Technology

Three-Year Program

Building Construction Technology

Building Construction curriculum is designed to prepare persons to work as foremen, superintendents, or contractors in the construction industry. This course is especially designed for those who have acquired basic skills in building trades before entering college.

The curricula are designed to meet the needs of the following types of students:

1. Those who for financial or other reasons cannot afford to spend four years in training.
2. Those who desire proficiency in a specific area of technology.
3. Employed persons who need additional technical training in their chosen fields.

Admission

General admission requirements are the same as those listed for admission to the College, including at least one unit each of high school algebra, geometry and science. A student with sixteen high school units may be

admitted without the required units in mathematics, but will be expected to correct such deficiencies by taking additional courses, without credit after enrolling.

Graduation Requirement

Students are required to satisfactorily complete the prescribed course of study they pursue with a minimum grade point average of 2.00.

Military training must be taken as required by the College.

AUTOMOTIVE TECHNOLOGY

MARQUIS L. COUSINS, *Chairman*

The purpose of the automotive program is to develop technicians who have the ability to diagnose the technical difficulties in the operation of automotive equipment. Special emphasis is placed upon technical information and knowledge of basic scientific principles.

The training includes information on basic management and business operations. This course meets the needs of persons having technical, mechanical, and executive abilities who wish to qualify as technical specialists or who desire to prepare themselves for supervisory positions.

The Automotive Technology program consists of two options:

1. Auto Mechanics
2. Auto Body and Metal

The first three quarters of the curriculum are the same for the two options.

CURRICULUM

First Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 101, 102	5	5	—
Mathematics 111, 112, 113	5	5	5
Fundamentals of Electricity and Magnetism, E.T. 120	3	—	—
Theory of Internal Combustion Engines, A.T. 121	3	—	—
Fuels and Carburetion, A.T. 122	—	3	—
Internal Combustion Engine Operation and Testing, A.T. 123	—	3	—
Fundamentals of Metal Joining, M.T. 115 ..	3	—	—
Automotive Electric Systems and Accessories, A.T. 124	—	—	5
Business Administration 102	—	—	5
Metal Joining Processes, M.T. 116	—	—	3
Machine Tool Lab, M.T. 111	—	3	—
	19	19	18

OPTION I—AUTO MECHANICS**CURRICULUM****Second Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Electrical Diagnosis, Engine Tune-Up, A.T. 225	3	—	—
Fundamentals of Hydraulics, A.T. 226	2	—	—
Physics 201, 202	5	5	—
Internal Combustion Engine, A.T. 227	—	—	3
Transmissions and Power Train, A.T. 228 ..	5	—	—
Front End Geom. and Brake System, A.T. 230	—	3	—
Transportation Problems, A.T. 231	—	—	2
Machine Tool Lab., M.T. 112	—	—	3
Shop Planning and Operational Procedures, A.T. 232	—	—	5
Elective	—	—	3
Automatic Transmissions A.T. 229	—	5	—
Accounting 201, 202	3	3	—
	18	16	16

OPTION II—AUTO BODY SCHEDULE**Second Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Auto Body Design Construction, A.T. 240 ..	3	—	—
Physics 201, 202	5	5	—
Fundamentals of Metal Joining Processes, M.T. 117	—	—	3
Machine Tool Lab, M.T. 112	3	—	—
Fundamentals of Painting, A.T. 241	3	—	—
Auto Body Rebuilding & Repair, A.T. 242 ..	—	5	—
Front End Geometry and Brake System, A.T. 230	—	3	—
Shop Planning and Operational Processes, A.T. 232	—	—	5
Auto Body Painting & Finishing, A.T. 243 ..	—	—	5
Elective	—	—	3
Automotive Repairs, Transportation A.T. 231	—	—	2
Accounting 201, 202	3	3	—
	17	16	18

DESCRIPTION OF COURSES**121. Theory of Internal Combustion Engine. Credit 3(2-2)**

Theory and operation of internal combustion engine with practical laboratory work with disassembly, assembly, and study of fundamental operations with basic elements of repair.

122. Fuels and Carburetion. Credit 3(2-2)

Theory and types of common fuels used and how they affect internal engines. Principle of fuel pumps and carburetion.

123. Internal Combustion Engine Operation and Testing. Credit 3(1-4)

A lecture demonstration course including methods of using testing equipment, motor analyzers, types of tests and equipment.

- 124. Automotive Electric System and Accessories.** Credit 5(3-4)
Theory, inspection and maintenance of ignition systems. Theory of operation of batteries, cranking motors, charging systems and lighting.
- 225. Electrical Diagnosis, Engine Tune-Up.** Credit 3(2-4)
Theory and use of modern electrical testing equipment. Diagnosis, troubleshooting, testing, and techniques of repairing electrical units, and cooling systems.
- 226. Fundamentals of Hydraulics.** Credit 2(2-2)
A study of basic mechanics as applied to automatic transmissions, power steering, power brakes, etc.
- 227. Internal Combustion Engine Mechanics.** Credit 3(2-2)
Major overhaul, engine rebuilding, use of boring bar, cylinder honing, etc.
- 228. Transmissions and Power Train.** Credit 5(2-6)
Theory, operation and inspection of clutches, transmissions, differentials and drive lines. Theory, operation of automatic transmissions, torque converters, fluid couplings and overdrives.
- 229. Automatic Transmissions.** Credit 5(2-6)
Disassembly and assembly of automatic transmission and power train units.
- 230. Front End Geometry and Brake Systems.** Credit 3(1-4)
Operation and maintenance technique of suspension systems, steering gears, wheel alignment and brakes system.
- 231. Automotive Repairs, Transportation.** Credit 2(2-0)
Problems in selecting equipment, servicing fleet and commercial vehicles.
- 232. Shop Planning and Operational Procedures.** Credit 5(3-4)
This course is designed to give the student both theoretical and practical experience in service management and operating a garage as a place of business, shop methods, record keeping.
- 240. Auto Body Design and Construction.** Credit 3(2-2)
The theory of body construction, shapes, parts of panels. How they are constructed, methods of replacing, repairing damaged panels, etc.
- 241. Fundamentals of Painting.** Credit 3(2-3)
The safety procedures, proper care of equipment, paint materials, color matching, the methods of preparation of surface for finishing, masking, sanding, priming, types of paints.
- 242. Auto Body Rebuilding and Repairing.** Credit 5(3-4)
Disassembly and assembly of damaged panels, repairing fender, doors, quarters panels, tops, the techniques of welding and soldering. Practical fender repairing including bumping, dinging, filing, sheet metal, heat shrinking, solder filling, plastic filling, use of disc sanders and aligning and roughing panels.
- 243. Auto Body Painting and Finishing.** Credit 5(3-4)
The procedure of spray lacquer, synthetic enamel and acrylic paints, spotting, color blending, proper under the ground coats. Garnish molding interior, estimation.

BUILDING CONSTRUCTION TECHNOLOGYJAMES F. DAWKINS, *Chairman*

The curriculum in Building Construction will meet the needs of students who wish to acquire, in a minimum length of time, the principles of building construction and related work. Training is given in planning, estimating, and construction work; also, the necessary related technical information concerning materials and processes of related trades is provided.

This training includes information on basic management and business operation, so that the students will be capable of serving as construction supervisors and contractors, after they have had a reasonable amount of experience.

CURRICULUM**First Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Mathematics 111, 112, 113	5	5	5
English 101, 102	5	5	—
Engineering Graphics, M.E. 101, 102	3	3	—
*Construction Methods, B.C. 111, 112, 113 ..	5	5	5
I. Ed. 224	—	—	3
Blueprint Reading, B.C. 115	—	—	3
Plane Surveying, M.E. 220	—	—	3
	18	18	19

Second Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Econ. 410	—	5	—
Electric Wiring, B.C. 225	—	3	—
Technical Drafting, T.D. 231, 232, 233	4	4	4
Machine Woodworking, B.C. 221, 222	—	5	5
Engineering Practices, M.E. 450	—	—	3
Mechanical Equip. for Bldgs., B.C. 227	3	—	—
Accounting 201	—	—	3
Business Administration, B.A. 102	5	—	—
Human Relations, B.C. 211	5	—	—
	17	17	15

Third Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Physics 201, 202	5	5	—
*Concrete & Masonry Construction, B.C. 331, 332, 333	5	5	5
Estimating, B.C. 335, 336	3	3	—
*Bldg. Materials Lab., B.C. 337, 338, 339	5	3	5
Wood & Steel Construction, B.C. 341	—	3	—
Heating & Air Conditioning, M.E. 315	—	—	3
Problems of Construction, B.C. 340	—	—	3
Foremanship Fundamentals, B.C. 342	—	—	3
	18	19	19

* Optional Courses—Two of the following courses may be substituted for two of the above courses as approved by the advisor: B.C. 344, 345; 346, 347; or 348, 349.

DESCRIPTION OF COURSES**111. Construction Methods.**

Credit 5(3-6)

Full size models of various framing sections of dwelling houses are constructed and studied, with special attention being given to building codes and zoning laws. The National Building Code is used in conjunction with textbooks covering the construction of residence foundations and framing systems. Floor joists, rafters, floors, wall and roof construction are included.

112. Construction Methods.

Credit 5(3-6)

Practical training in residential building construction is continued with consideration given to the various finishes and completion processes including cornice work, and siding. The proper application of millwork, insulation and hardware are studied.

113. Construction Methods.

Credit 5(3-6)

Practical bench work training is given in making joints, followed by cabinet work requiring the use of both bench and machine operation. Instruction is also given in the use of steel square and in roof framing. Students lay out the different kinds of roof rafters using full-sized material.

115. Blueprint Reading.

Credit 3(3-0)

A study of architectural blueprints for all students who must translate drawings into actual existing structures. This course is also useful for students in general layout of electrical, plumbing and heating and air conditioning systems.

211. Human Relations.

Credit 5(5-0)

A study of problems in the work-a-day world which will aid one in getting along with people on the job, in the community and the home. These units of work include: habits one may acquire in order to improve human relations, privileges, rights and obligations as a citizen; obtaining and holding a job; labor problems, social and commercial insurance and the use of leisure time.

221. Machine Woodworking.

Credit 5(3-6)

Deals with the use of woodworking tools and the operation and maintenance of woodworking machines. The selection and uses of various kinds of cabinet construction by hand tools and machine operations. Actual shop practice in making various types of cabinets such as kitchen cabinets, built-in wardrobes, and bookcases.

222. Machine Woodworking.

Credit 5(3-6)

Machine woodwork, including advanced operations on the power saws, jointer, planer, mortiser and shaper; advanced construction; manufacturing methods, materials, detailing of cabinets, and quantity survey. Prerequisite: 221 B.C.

225. Electric Wiring.

Credit 3(2-3)

The study of materials, methods, and nomenclature used in residential and commercial wiring, including a study of national and local codes, layout, plans, and specifications.

227. Mechanical Equipment for Buildings.

Credit 3(3-0)

The basic principles and advanced practices in the selection, installation, operation and maintenance of equipment in the general areas of water supply and sanitation.

331. Concrete and Masonry Construction. Credit 5(3-6)

An introduction to the kinds and uses of brick, mortar, concrete, and masonry tools and equipment. Construction of walls, piers, chimneys, estimating, etc.

332. Concrete and Masonry Construction. Credit 5(3-6)

This course covers laying out work as designed by working drawing, the erection of building structures of brick, block, and structural tile. The care and operation of mechanical equipment.

333. Concrete and Masonry Construction. Credit 5(3-6)

The study and application of various types of masonry construction and construction methods employing various masonry materials. Emphasis on brick veneering, concrete foundations, floors, etc.

335. Estimating. Credit 3(3-0)

This course is designed to enable the student to develop a fundamental knowledge of estimating construction cost of the various materials utilized in the building construction field.

336. Estimating. Credit 3(3-0)

A study of various types of estimates in determining the cost of materials, equipment, labor and other items which are pertinent to an accurate system of estimating.

337. Building Materials Lab. Credit 5(3-6)

Methods of general interior and exterior house painting. Students become familiar with all the tools, equipment, and materials used in the trade. He receives actual practice as well as the technical information necessary to acquire a thorough working knowledge of the painting and decorating fields.

338. Building Materials Lab. Credit 3(1-6)

Theory and practice of and with the materials, tools, and equipment used in painting and decorating. Training is given in preparing surfaces, mixing and applying all types of house paints. The composition, characteristics and properties of paints and the surfaces suitable for their application are given careful consideration.

339. Building Materials Lab. Credit 5(3-6)

The course is designed to give the student a general and practical knowledge of the decorative, fabricated, synthetic materials and other products used in the building trades. Work in the laboratory will include experimental exercises and actual working with these materials.

340. Problems of Construction. Credit 3(3-0)

A study and analysis of various problems in the construction industry. Consultants and experienced personnel in the building construction field are frequently called upon as guest lecturers.

341. Wood and Steel Construction. Credit 3(3-0)

A study of the design of beams, girders, joist, and columns in both wood and steel. Included is the study of various timber fasteners, steel and timber trusses, and steel frame works.

342. Foremanship Fundamentals.

Credit 3(3-0)

A study of industrial accident prevention, considering the nature and extent of the accident problem. A practical study is given the technique for control of industrial hazards together with the fundamentals of good organization.

344, 345. Building Methods.

Credit 5(3-6) Each

The use of builder's level, staking out building sites, foundations, advanced frame construction; including complex layout of roofs of all types. Advanced blueprint reading, layout and estimating of buildings. Actual practice in building residence and commercial type buildings of light frame construction. Prerequisite: B.C. 113.

346, 347. Concrete and Masonry Construction.

Credit 5(3-6) Each

Emphasis is placed on residential and industrial building. An integral study of such phases of building construction as brickmasonry, plastering, concrete work, structural and ceramic tile. An investigation of current production methods, codes, ordinances. Lectures are supplemented by laboratory studies, research projects, and consultants from industry.

348, 349. Painting and Finishing.

Credit 5(3-6) each

Advanced theory on finishing materials; their properties, manufacture and use. Practice in using various types of materials on interior and exterior work in laboratory.

351. Metal Work.

Credit 3(2-3)

A comprehensive coverage of the basic principles and procedures in building construction metal work. The two general classes of metal work covered will be outside metal jobbing and heating and ventilation.

352. Masonry Construction.

Credit 2(0-6)

A study of the history of masonry among the ancient and modern nations of the world. Practical work in the construction of masonry projects.

353. Masonry.

Credit 2(0-6)

A general study of the uses of brick, concrete, plaster, tile and stone in the construction industry.

354. Use of Power Tools in Cabinet Making.

Credit 2(0-6)

Care and use of power tools. Built-in cabinets, small projects such as desks, bookcases or useful projects for the home.

355. Finishing in Cabinet Making.

Credit 2(0-6)

Inside trim. Varieties and characteristics of timber used in projects. Applying hardware, application of stain, varnish, shellac and enamel.

356. Color Dynamics.

Credit 2(0-6)

A course designed to give a technical knowledge of colors and their uses. Mixing and matching colors, color psychology, color schemes and color harmony will be included in the course.

357. Decorating for Homemakers.

Credit 2(0-6)

A course designed to give the student a knowledge of general painting done around the home. A study will be made of the types of materials and paints used as well as coating small areas and articles found around the home.

DRAFTING TECHNOLOGYJ. L. JENKINS, *Chairman*

The Drafting Technology curriculum is designed for students with good aptitudes in drafting subjects, and for those who wish to secure positions as draftsmen and other related positions in the technical fields.

The broad scope of subject matter prepares the student to seek employment or advance to positions as inspectors, sales engineers, estimators, engineering assistants, designers, technical report writers, installation technicians, and production foremen.

Special attention is given to insure necessary skills on the part of the student in all fields of modern drafting. Moreover, the drafting department has special courses geared to the special problems and needs of building construction majors.

CURRICULUM**First Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Engineering Graphics, M.E. 101, 102, 103 ..	3	3	3
Mathematics 111, 112, 113	5	5	5
English 101, 102	5	5	—
Machine Tool Lab, M.T. 111	3	—	—
Fund. Elec. & Mgtsm., E.T. 120	3	—	—
Technical Drawing, T.D. 113	—	—	4
Business Administration, B.A. 102	—	5	—
Mechanical Equipment, B.C. 227	—	—	3
Wood and Steel Construction, B.C. 341	—	—	3
	19	18	18

Second Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Technical Drawing, T.D. 221, 222, 223	4	4	4
Technical Drawing, T.D. 224	—	—	3
Human Relations, B.C. 211	5	—	—
Physics 201, 202	5	5	—
Machine Tool Lab., M.T. 112	—	—	3
Estimating, B.C. 335	—	3	—
Problems of Construction, B.C. 340	—	—	3
Accounting 201	3	—	—
Introduction to Eng. Comp., M.E. 200	—	2	—
Plane Surveying, M.E. 220	—	—	3
Art 112	—	3	—
Electric Wiring, I.A. 226	3	—	—
	20	17	16

DESCRIPTION OF COURSES**113. Technical Drawing.**

Credit 4(1-6)

Scales used in detailing, voiding of details, general notes, types of construction, use of manufactured materials and equipment, use of engineering calculations and construction operations. Prerequisite: M.E. 102.

221. Technical Drawing. Credit 4(1-6)

Working drawings of connectors, fabrication materials, fasteners, footings, maps, plot plans, and floor plans for industrial and residential buildings.

222. Technical Drawing. Credit 4(1-6)

Working drawings dealing with structure details, blueprint reading, tracing, and methods of reproduction. The student at this point must be able to classify papers, drawing media of all types and their uses, and to construct graphs and make graphical solutions to drafting problems.

223. Technical Drawing. Credit 4(1-6)

Working drawings chosen of different degrees of difficulty. Each student will be required to do detail working drawings in machinery, electrical, residential and industrial structures.

224. Drafting Room Methods. Credit 3(3-0)

Lectures from visiting lecturers in the field of drafting, visitation to drafting departments in industry and in the surrounding community, and a study of drafting room procedures. A brochure must be developed by each student.

231. Plans. Credit 4(1-6)

Layout methods and procedure, for window and door conventions, standard symbols for wiring, plumbing, heating, abbreviations, and systems of dimensioning used in making plans for residential and industrial buildings. Prerequisite: M.E. 102.

232. Elevations and Sections. Credit 4(1-6)

Layout procedure of making elevations and sections drawings. Prerequisite: T.D. 231.

233. Reproduction and Display. Credit 4(1-6)

Reproduction drawings as well as the means of reproduction. Includes display drawings, perspective drawing, free hand sketching, water color and pencil rendering.

ELECTRICAL TECHNOLOGY

MELVIN T. ALEXANDER, *Chairman*

The purpose of the Electrical Technology program is three-fold: first, to train a person to become a skilled technician; second, to provide good basic skills in related fields that will enable him to properly communicate with others in his chosen field. Third, inspire him to improve himself in order to become a better citizen as well as a better technician.

The curriculum is designed to provide in the first year basic courses that will give a good foundation in mathematics, English, and other courses that will provide discipline in the development of concise scientific thinking and at the same time enable them to grasp new ideas and conceive better ways of putting these ideas into practice.

The second year has three options:

OPTION I—RADIO-TELEVISION SERVICING

This course is designed to prepare one to meet the needs of the radio-television service industry which has become one of the largest of the serv-

ice fields. The course will meet the need of those who wish to establish their own business or seek employment as service-men.

OPTION II—INDUSTRIAL ELECTRONICS

The second option has courses designed for those who plan to go into industry or government work as electronic technicians. Emphasis is placed on specialized electronic circuits encountered in the industry. The person is trained to work with the engineer in solving the many problems that are faced in this space age.

OPTION III—INDUSTRIAL ELECTRICITY

The third option is designed to train the student to fill the need for the great demands of the world-wide boom in building and construction of homes, and commercial buildings. Courses are designed to conform with the National Electrical Code are stressed and design and methods follow closely with those used in industry in order to enable one to prepare the student for employment in the industrial electricity industry.

CURRICULUM

First Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Mathematics, 111, 112, 113	5	5	5
English 101, 102, 103	5	5	5
Engineering Graphics, M.E. 101, 102	3	3	—
Fund. of Elec. & Mag., E.T. 120	3	—	—
Electronic Circuits, E.T. 121	—	3	—
Radio & Elec. Circuits, E.T. 122	—	—	3
Instruments & Measurements, E.T. 123	—	—	3
	—	—	16

OPTION I—RADIO-TELEVISION SERVICING

CURRICULUM

Second Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Physics 201, 202	5	5	—
Basic Television, E.T. 204	5	—	—
Accounting 201, 202	3	3	3
T.V. Lab, E.T. 205, 206	—	5	5
Human Relations, B.C. 211	—	5	—
Construction Technique, E.T. 207	5	—	—
Audio, E.T. 208	—	—	5
Special Problems, E.T. 209	—	—	3
Shop Technique, E.T. 230	—	—	3
	18	18	19

OPTION II—INDUSTRIAL ELECTRONICS**Second Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Physics 201, 202	5	5	—
Accounting 201, 202	3	3	—
Amplifiers, E.T. 231	5	—	—
Communications, E.T. 233	—	5	—
Labor Problems, Ec. 410	—	—	5
Electronic Control, E.T. 234	—	5	—
Electronic Systems, E.T. 235	—	—	5
Semi-Conductors, E.T. 236	—	—	5
Advanced Electronic Instruments, E.T. 232 ..	3	—	—
Industrial Electronics, E.T. 237	—	—	5
	16	18	20

OPTION III—INDUSTRIAL ELECTRICITY**Second Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Physics 201, 202	5	5	—
Wiring Methods, E.T. 238	5	—	—
Illumination, E.T. 239	3	—	—
Human Relations, B.C. 211	5	—	—
Estimating, B.C. 335	—	3	—
Wiring Design, E.T. 242	—	5	—
Low Voltage Wiring, E.T. 243	—	5	—
Motor Control E.T. 244	—	—	5
Electric Motor Winding, E.T. 245	—	—	5
Special Problems, N.E. Code, E.T. 246	—	—	5
	18	18	15

DESCRIPTION OF COURSES**101. Basic Electricity.**

Credit 3(2-2)

A general background in basic electricity theory, such as Ohm's law, A.C., D.C., magnetism, batteries and other basic information.

120. Fundamentals of Electricity and Magnetism.

Credit 3(2-2)

This course deals with A.C. and D.C. circuits, Ohm's law, and power relationship.

121. Electronic Circuits I.

Credit 3(2-2)

A solid foundation is built in circuits required in electronics. Emphasis is placed on circuit analysis using problem-solving techniques. This course includes Ohm's law, power and efficiency, conductors, Kirchoff's law, inductance, and capacitance.

122. Radio and Electric Circuits.

Credit 3(3-2)

This course is a more advanced study of electronic circuits and makes a further study of more advanced circuits than those studied in E.T. 121.

123. Instruments and Measurements.

Credit 3(3-0)

This course offers the student the opportunity to become familiar with a variety of electronic measuring instruments such as the volt-meter, V. T. V. M., signal generator, tube checker, oscilloscope, watt meter, ohmmeter, and other instruments used in electronics for measurement.

204. Basic Television.

Credit 5(3-4)

This course is a study of basic television circuits including both the receiver and transmitter. The complete television receiver is studied using all types of special television test equipment and the tech-master demonstrator for classroom demonstration.

205. Television Laboratory.

Credit 5(2-6)

The problems in the installation and servicing of television receivers in the home, test pattern analysis, checking and adjusting the receiver and the use of trouble-shooting charts and basic test equipment are taught.

206. Television Laboratory.

Credit 5(2-6)

Special problems encountered in the installation of receiving antennas and advanced methods of trouble-shooting receivers are covered during this quarter.

207. Construction Technique.

Credit 5(3-4)

This laboratory course provides a background in techniques used in construction. This includes point to point wiring and square corner wiring, all types of soldering, component color coding, screw types and sizes and the correct use of hand tools. Chassis are laid out and constructed.

208. Audio.

Credit 5(5-0)

The study of a band of frequencies in the audio range and the associated equipment needed to reproduce these frequencies. Special audio amplifiers, generators, speakers and audio circuits are covered in this course.

209. Special Problems.

Credit 3(3-0)

This course gives the student both theoretical and practical solutions to many special problems encountered in Radio-Television Service.

230. Shop Technique.

Credit 3(0-6)

Correct shop practices are applied to manufacturing techniques, testing and servicing procedure, building laboratory test equipment, apparatus layout and construction.

231. Amplifiers.

Credit 5(5-0)

A special study of all types of A.F. voltage amplifiers and power amplifiers. Frequency response, amplitude and phase distortion, feed back with special emphasis placed on high fidelity amplifier design and construction.

232. Advanced Electronic Instruments.

Credit 3(2-2)

Many instruments used in industrial electronics must be of special design and of extreme accuracy. The student is afforded an opportunity to become familiar with this class of instruments.

233. Communications.

Credit 5(3-4)

Electronic circuits used in communication are covered in this course. This includes telephone, telegraph, and mobile radio. Special emphasis is placed on the citizen band and the correct installation and maintenance of equipment used for two-way radio communication.

234. Electronic Control.

Credit 5(5-0)

Basic courses are combined to form systems. The laboratory work consists of experimental investigations using typical equipment and methods.

235. Electronic Control Systems.

Credit 5(3-4)

A continuation of E.T. 234.

- 236. Semi-Conductors.** Credit 5(5-0)
A study of transistors, diodes, and other devices used in electronic circuits that are in the semi-conductor class.
- 237. Industrial Electronics.** Credit 5(5-0)
Computers, solid state devices, and theory of operation of many of the new advances in the electronic world is covered in this course.
- 238. Wiring Methods.** Credit 5(3-6)
A study of wiring and wiring methods used in buildings. The proper selection of wire sizes, fuses, circuit breakers, distribution systems, control circuits and service entrances.
- 239. Illumination.** Credit 3(2-2)
Principles and practices of illumination are stressed. Modern illumination principles, calculation procedures, and equipment are coordinated in design problems of complete fluorescent and incandescent lighting installations.
- 242. Wiring Design and N.E. Code.** Credit 5(3-4)
This course is a study of design and layout of electrical wiring systems for lighting, motors, and control circuits in accordance with standard practice and the recommendations of the National Electric Code.
- 243. Low Voltage Multi-Control System.** Credit 5(3-6)
Low voltage wiring methods, selection of controls, and relays. This system uses small relays which are actuated by low voltage switches to control lighting and other circuits in residential commercial installations.
- 244. Motor Controls.** Credit 5(3-4)
The application, operation, characteristics of controls used with electrical motors.
- 245. Electrical Motors and Winding.** Credit 5(2-6)
Principles of single phase, split phase, and poly-phase motors are studied. Proper use of the coil winding machine, oven, and correct methods of testing motors.
- 246. Special Programs.** Credit 4(4-0)
Presentation by students of oral and written reports in development and standards in wiring according to the current changes in the National Electric Code.
- 147. Introduction to Photography.** Credit 3(2-2)
Small camera operation and roll film development, operation and techniques used in making good pictures with small cameras, types of film used in small cameras and their development.
- 148. Contact and Projection Printing.** Credit 3(2-2)
A continuation of E.T. 147 with training in contact, projection printing, and various finishing methods.
- 149. Composition in Photography.** Credit 3(2-2)
Planning of subject material for composition in the picture, using natural and artificial light in photography, and means of correcting common errors.
- 250. Portrait Photography and Negative Retouching.** Credit 3(2-2)
Basic portrait lighting, artificial and natural. Basic posing of individuals and groups. Improving picture quality by negative retouching.

251. Sensitometry.

Credit 3(2-2)

A study is made of photo cells, electric eye and their use in photography. Papers and materials used for saloon mounting and television viewing.

252. Color Photography.

Credit 3(2-2)

An intensive course in advantages and disadvantages of color, principles of color, types of color film, film development, color harmony and clothing, subject color, subject contrast, and latest improvements in color.

MECHANICAL TECHNOLOGYANDREW W. WILLIAMS, *Chairman*

The course is planned for those persons who wish to become skilled technicians, tool and die specialists, production foremen in machine shops and metal working industries of all types and technical assistants to engineers. A person planning to enter this course should have a good mechanical aptitude and ability. Basic procedures in manufacturing processes of the metal working industries are covered as well as the directly related courses explaining the "why" of many procedures in the manufacturing process. Selected courses are included in the curriculum in order to help the graduate advance in the industrial world.

The Department of Mechanical Technology includes Air Conditioning and Refrigeration Technology as an option. Students who wish to major in this area should register for the courses listed in the Air Conditioning and Refrigeration Technology curriculum.

CURRICULUM**First Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
M.T. 121, 122, 123	5	5	3
Chemistry 101, 102	5	5	—
Engineering Graphics, M.E. 101, 102	3	3	—
Mathematics 111, 112, 113	5	5	5
E.T. 120	—	—	3
M.T. 115	—	—	3
English 101	—	—	5
	18	18	19

Second Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Mechanical Technology 225, 226, 227	5	5	5
Mechanical Engineering 200, 205	2	3	—
Mechanical Engineering 450	3	—	—
English 102	5	—	—
Mechanical Engineering 103	3	—	—
Psychology 403	—	5	—
Physics 201, 202	—	5	5
Accounting 201	—	—	3
Business Administration 102	—	—	5
	18	18	18

DESCRIPTION OF COURSES

- 111. Machine Tool Lab. for Non-Mechanical Technology Majors.** Credit 3(2-2)
A basic course in machine tool lab consisting of bench work, drill press work, and basic engine lathe operations.
- 112. Machine Tool Lab. for Non-Mechanical Technology Majors.** Credit 3(2-2)
Basic and advanced operations on the lathe, shaper, milling machine, grinder and turret lathe.
- 113. Machine Tool Lab. for Non-Mechanical Technology Majors.** Credit 3(2-2)
Advanced operations on all major machines. Prerequisite: M.T. 112.
- 115. Fundamentals of Metal Joining.** Credit 3(2-2)
The course is designed to give the student the knowledge and understanding of the fundamentals of welding, brazing and soldering.
- 116. Fundamentals of Metal Joining Processes.** Credit 3(2-2)
This course is designed to give the student the understanding of the fundamentals of the different processes of metal joining, which include electric arc welding, heliarc welding, spot welding, oxyacetylene gas welding, brazing, and soldering.
- 117. Advanced Fundamentals of Metal Joining Process.** Credit 3(2-2)
This is a continuation of M.T. 116 designed to give practical experience in the operation of tools required in the process of welding and in brazing and soldering.
- 121. Machine Tool Lab. I.** Credit 5(3-4)
Basic processes in machine shop practice. Emphasis will be on the drill press, lathe and layout methods and the use of hand tools and measuring instruments.
- 122. Machine Tool Lab. II.** Credit 5(3-4)
Continuation of machine shop basic operations with emphasis on the milling machine, shaper, grinders, precision layouts and fittings. Prerequisite: M.T. 121.
- 123. Elementary Metallurgy.** Credit 3(2-2)
Elementary study of the basic structures of metals and their composition. Case hardening, annealing, drawing, quenching, melting points of various metals, temperatures for hardening, etc. Prerequisite: M.T. 122.
- 225. Tool Design.** Credit 5(3-4)
The design and manufacture of tools, jigs, fixtures for production work. Prerequisite: M.T. 123.
- 226. Tool Design and Manufacturing Techniques.** Credit 5(3-4)
Techniques in the building of jigs, fixtures, special cutting tools, press dies and other special tools used in production work, and test of properties of materials. Prerequisite: M.T. 225.

227. Tool Design and Manufacturing Problems.

Credit 5(3-4)

Design and production problems connected with manufacturing. Selecting equipment and materials, estimating production time, etc.

AIR CONDITIONING AND REFRIGERATION TECHNOLOGY

The purpose of this course is to prepare the students to meet the requirements of the various branches of the air conditioning and refrigeration industry. Students who complete the requirements of this course will be qualified for employment as technicians, operating engineers, servicemen, and also for work in other areas of the air conditioning and refrigeration industry. If desired, students may establish businesses for themselves. Training consists of technical information, laboratory experiments, and practical projects in refrigeration.

CURRICULUM**First Year**

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
A.R. 121, 123, 125	3	3	3
A.R. 122, 124, 126	2	2	2
Mathematics 111, 112, 113	5	5	5
English 101, 102	5	5	—
M.T. 115	—	—	3
M.T. 111, 112	3	3	—
E.T. 120	—	—	3
	19	18	16

Second Year

<i>Course and No.</i>	<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
A.R. 227, 228, 229	5	5	5
Physics 201, 202	5	5	—
Business Administration 102	—	—	5
Mechanical Engineering 101, 102	3	3	—
Accounting 201, 202	3	3	—
Building Construction 211	—	—	5
Elective	3	2	3
	19	18	18

DESCRIPTION OF COURSES**121. Basic Refrigeration.**

Credit 3(3-0)

A study of the basic principles of refrigeration and electricity. Typical application of refrigeration cycles and the value of refrigeration tables.

122. Refrigeration Equipment Laboratory.

Credit 2(0-6)

Application of the principles learned in A.R. 121.

123. Commercial Refrigeration.

Credit 3(3-0)

Purpose and construction of refrigeration units and refrigerants—regulations and codes. Commercial refrigeration load calculation—sizing and selection of pipes, valves, fittings, and controls.

124. Commercial Refrigeration Laboratory. Credit 2(0-6)

Practical problems dealing with the construction of refrigeration units. Continuation of A.R. 123.

125. Special Systems and Refrigeration Trouble Analysis. Credit 3(3-0)

A study of all the components of refrigeration systems and their troubles. Multiple and cascade systems, calculations and refrigeration piping, the refrigerant charge, water piping, and water chillers.

126. Refrigeration Systems Laboratory.

Actual hook-ups of special systems outlined in A.R. 125.

227. Principles of Air Conditioning. Credit 5(3-6)

A study of the various fundamentals involved in the conditioning of air for comfort. Sensible and latent heat, heat transfer, states of matter and humidity.

228. Air Conditioning Systems and Controls. Credit 5(3-6)

A continuation of A.R. 227 with more emphasis upon the control of air, temperature, moisture, and humidity. Control, psychometric properties of air and air conditioning systems, self contained and remote.

229. Heat Loads.

Credit 5(3-6)

Types of heat loads, heat transmission and other types of systems not covered in A.R. 229 such as heat pumps, and automobile air conditioning.

DRIVER EDUCATION

ISAAC BARNETT, *Instructor*

314. Driver Education and Traffic Safety. Credit 3(2-3)

This course is designed to train students who may wish to teach driver education in the public schools. Emphasis will be placed on the objective and scope of driver education, traffic laws, preventive maintenance, skill developing exercises and aids to teaching.

403. Driver Education and Teacher Training. Credit 3(2-3)

This course provides the student with the necessary preparation to organize and administer the high school driver education program. Special attention will be given to methods and resources; scheduling and evaluation. Laboratory experience will be provided on the dual control automobile.

RESERVE OFFICERS' TRAINING CORPS



Department of Military Science
Department of Air Science

DEPARTMENTS OF AIR AND MILITARY SCIENCE

The Reserve Officers' Training Corps (ROTC) at A & T College consists of those students enrolled for training in the Department of Military Science or in the Department of Air Science. These Departments are integral academic and administrative subdivisions of the institution. The Senior Army Officer and the senior Air Force Officer assigned to the college are designated as Professor of Military Science (PMS) and Professor of Air Science (PAS), respectively. These senior officers are responsible to the Department of Defense and the institutional Coordinator of Military Training for conducting the training and academic program. Army officers who are assigned to the college as instructors in the ROTC are designated Assistant Professors of Military Science; Air Force Officers, as Assistant Professors of Air Science. Noncommissioned officers of the Army are assigned as assistant instructors and administrative personnel. Noncommissioned officers of the Air Force are assigned as Specialists, Technicians, and Supervisors in the area of Administration, Education, Personnel and Supply.

COURSES OF INSTRUCTION

Programs of instruction for both the Army and Air Force ROTC consist of a two-year basic course and a two-year advanced course. The basic course in either the Army or the Air Force ROTC is required for all physically fit male freshmen and sophomores not less than 14 years of age who have not been excused from the course by the College administration. Enrollment in advanced courses is contingent on the passing of an advanced course qualifying test and selection by the Professor of Military Science or Professor of Air Science. However, any student who is selected for enrollment enrolls in the advanced course for the purpose of obtaining a commission as a Reserve Officer in either the Army or Air Force. He must be a citizen of the United States and possess the character and loyalty requirements prescribed by the Armed Forces. In addition, he must have demonstrated the qualities and positive potential for becoming an effective officer. A student will not be enrolled in the advanced Air Force ROTC course if his age is such that he will be unable to complete all of his ROTC training and his academic requirements for a degree from this institution prior to reaching 26½ years of age, if he is subsequently programmed for flying training, or 28 years of age, if he is programmed for other than flying training. Enrollment in Advanced Army ROTC will be limited to those students who can qualify for appointment as second lieutenants prior to reaching 28 years of age.

A veteran who has served at least six months of active duty service with any branch of the Armed Forces may be excused from the freshman portion of the basic ROTC course. A veteran with one year or more of active service in the Armed Forces may be excused from the entire basic ROTC course and, upon reaching his junior year, may be permitted to enroll in the advanced courses of the Army or the Air Force, at the discretion of the Professor of Military Science and the Professor of Air Science respectively, provided he meets the requirements mentioned in the preceding paragraph.

UNIFORMS AND EQUIPMENT

All regularly enrolled members of the Air Force and Army ROTC units are furnished by the Government free of cost, uniforms, equipment, and textbooks. A deposit of ten dollars (\$10.00) is required of all students at time of registration to cover uniforms issued to them. This fee will be refunded when uniforms are returned. The student is responsible for the care, safe-guarding, and cleaning of property issued to him. He is financially responsible for the loss, excessive wear, breakage due to carelessness, or unauthorized use of clothing and equipment.

All ROTC property must be returned to the Military Property Custodian at the end of the school year or when a student withdraws from school.

CREDIT

Credit is allowed for work at other institutions having an ROTC Unit established in accordance with the provisions of the National Defense Act and regulations governing the ROTC. Record of a student's prior training in the ROTC is obtained from the institution concerned.

FINANCIAL AID

Students enrolled in the advanced course are paid a monetary allowance in lieu of subsistence at the daily rate equal to the value of the commuted ration \$(0.90) for a total period not to exceed 595 days during the two years of the course. Students in the basic course receive no monetary allowance.

ORGANIZATION OF THE ROTC

The Air and Army ROTC units are organized into a Joint Cadet Corps. The Corps consists of the Army ROTC Cadet Battalion, the Air Force ROTC Cadet Group, the Army and Air Force Drill Teams, Bands, and Military and Air Police Units. The Corps is commanded by a Cadet Colonel selected from among Army and Air Force Cadets on alternate years. The Corps staff consists of two cadet officers from each unit. The units combine to perform as a corps in several special occasions during the academic year.

DISTINGUISHED CADETS

The Professor of Air Science and Professor of Military Science with the concurrence of the College are authorized to designate outstanding cadets as Distinguished AFROTC Cadets and Distinguished Military Students respectively. These cadets may upon graduation be designated Distinguished Graduates. They may subsequently be awarded commissions in the regular components of the Army or Air Force provided they desire to apply and are selected.

SELECTIVE SERVICE IN RELATION TO THE ROTC

Enrollment in the ROTC does not in itself defer a student from induction and service under the Universal Military Training and Service Act. The law provides that "within such numbers as may be prescribed by the Secretary of Defense, any person, who (a) has been or may hereafter be selected

for enrollment or continuance in the senior division, Reserve Officers' Training Corps, or in the Air Force Reserve Officers' Training Corps, or the Naval Reserve Officers' Training Corps; (b) agrees, in writing, to accept a commission, if tendered, and to serve, subject to order of the Secretary of the Military Department having jurisdiction over him, not less than two years of active duty after receipt of a commission in the Army or four years if commissioned in the Air Force; and (c) agrees to remain a member of a regular or reserve component until the eighth anniversary of the receipt of a commission in accordance with his obligations under subsection (d) of Section 4 of this title, shall be deferred from induction under this title until after completion or termination of the course of instruction and so long as he continues in a regular or reserve status upon being commissioned, but shall not be exempt from registration."

DEPARTMENT OF MILITARY SCIENCE

LT. COLONEL WILLIAM GOODE, *PMS*

The program of instruction, as offered by the Department of Military Science, has as its objectives the production of junior officers who have the qualities and attributes essential to their progressive and continued development as officers of the Army of the United States; the laying of a foundation for intelligent citizenship within the student; the imparting to the student of a basic military knowledge of benefit to himself and to the military in the event he becomes a member thereof, and the furtherance of the program of the College.

COURSES IN MILITARY SCIENCE

The Basic Course

*101. Military Science I.

Credit 1(1-2)

A history of the organization of the Army and ROTC, with a study of the reasons for their continued growth. Purposes and objectives of military training, its benefits and potentialities. Organization of Infantry units with emphasis on specific duties and responsibilities of key personnel. Introduction to the evolution of firearms with particular attention to detailed construction, mechanical functioning, and proper application of marksmanship techniques. Development of initiative and self-confidence through leadership training and drill experience.

102. Military Science I.

Credit 1(1-2)

A continuation of instruction in mechanical functioning of military small arms and the proper application of marksmanship techniques. Discussions of the missions and responsibilities of the United States Army in National Security with emphasis on the geopolitical aspects of contemporary world history. Further development of initiative and self-confidence through leadership training and drill experience.

* An elective academic subject approved by the PMS is required at some period during the freshman, junior and senior year of all MS I, III and IV cadets.

103. Military Science I.

Credit 1(1-2)

Discussions on National Security are continued. Discussions will include the Role of the Army in all Conceivable Types of War, Manpower and Training Problems and the student's personal responsibility as a citizen and leader. Leadership training with a view toward the cultivation of desirable traits of leadership and self-confidence.

201. Military Science II.

Credit 2(2-2)

A comprehensive survey of the origin and growth of the United States Army. A teaching of the principles of war with illustrations of their application to modern warfare. A general study of the foreign and United States military policies and the basic causes leading to the various wars in which the United States has participated. Emphasizing of the continuing progress of the United States Army with stress on factors leading to organizational, tactical, logistical, operational, strategic and social patterns found in the present-day Army. American History with primary emphasis on its military aspects.

202. Military Science II.

Credit 2(2-2)

A continuing study of American Military History emphasizing the attributes of American military leaders and their contributions to the advancement of the Art of War. The growing influence of logistics as brought about by the complexities of modern warfare. The basic principles of map mechanics to include military grid reference systems, map projections, and determination of scale, distance and direction. Includes an analysis of aerial photographs. Leadership laboratory.

203. Military Science II.

Credit 2(2-2)

A continued study of map reading techniques with emphasis on map coordinates, determination of elevation, percentage of slope, visibility and terrain analysis. A study of the principles of counterinsurgency. Introduction to the basic tactics and operations. Leadership laboratory.

The Advanced Course***301. Military Science III.**

Credit 3(3-2)

Instruction in the personal and professional qualifications required of an effective military instructor. Emphasis on practical application through use of supervised presentations by each student of a military lesson. Methods and procedures for effecting good military instruction are stressed. Leadership principles designed to give each student a broad aspect of the leadership requirements of the newly commissioned officer. Stress is on leadership with emphasis on a functional approach to the study of leadership. Leadership, drill and command with stress on the development of self-confidence and the exercise of command.

302. Military Science III.

Credit 3(3-2)

Roles of the various combat arms and technical services of the U. S. Army illustrating how these Army branches are welded together into the formidable "Army Team." An introduction to signal communications at small unit level. Review of the Principles of Offensive and Defensive Combat and their application to units of the Infantry Division Battalion. Practice in the application of sound principles of military leadership.

303. Military Science III.

Credit 3(3-2)

A continuation of small unit tactics and communication. A study of communication principles and procedures in the Infantry Division Battalion. Orientation on the nature and purpose of ROTC summer camp training to include sociological factors involved. A study of the principles of counterinsurgency. Leadership laboratory designed to point out responsibilities and qualities of a leader and human behavior.

* An elective academic subject approved by the PMS is required at some period during the freshman, junior and senior year of all MS I, III and IV cadets.

***401. Military Science IV.**

Credit 3(3-2)

Staff Organization and Duties. Estimate of the Situation and Combat Orders. Principles of Combat Intelligence to include the collection of information of the enemy, weather and terrain; and the analysis and subsequent proper dissemination of military intelligence. Training management including the scheduling of systematic procedures and efficient organization for training.

Fundamentals of Supply and Movement of Small Units. Leadership, drill and command with emphasis on the essential attributes of leadership ability in all fields of human endeavor.

402. Military Science IV.

Credit 3(3-2)

Army administration emphasizing personnel management and counselling. Principles and procedures of Military Law to include the types of military courts and a comparison of military and civilian systems of justice. Leadership with emphasis on the essential attributes of leadership in all fields of human endeavor.

403. Military Science IV.

Credit 3(3-2)

An analytical treatment of the geographical and economic aspects of National Security in the United States. A study of the War Potential of the United States, and selected foreign countries, as conditioned by certain natural and human factors. An orientation on the customs of the service and other aspects of Army life applicable to the newly commissioned officer. A review of the principles of map reading. Leadership laboratory with emphasis on methods of maintaining discipline and morale.

DEPARTMENT OF AIR SCIENCE

LT. COLONEL WILLIS J. HUBERT, PAS

The Air Force Reserve Officers Training Corps at The Agricultural and Technical College aims to develop in selected college students, through a permanent program of instruction, those qualities of leadership and other attributes essential to their progressive advancement to positions of increasing responsibility as commissioned officers in the United States Air Force.

The purpose and specific objectives of this program are:

- a. To develop in selected cadets, through a sound education and training program, the initial motivation to serve as career officers in the United States.
- b. To develop in cadets by precept, example, and participation the attributes of character, personality, and attitudes essential for leadership.
- c. To develop in cadets an interest in the Air Force, and an understanding of its mission, organization, operations, problems, and techniques.
- d. To provide that military education and training which will prepare cadets to discharge the duties and responsibilities required of them as Air Force officers.
- e. To select and motivate cadets for career fields as specifically required by the United States Air Force.

* An elective academic subject approved by the PMS is required at some period during the freshman, junior and senior year of all MS I, III, and IV cadets.

COURSES IN AIR SCIENCE**The Basic Course****AIR SCIENCE 1****A.S. 101. Foundations of Aerospace Power.**

An appropriate college course and its credits will be substituted in lieu of Air Science academics.

Two hours of Leadership Laboratory Training are required per week.

A.S. 102. Foundations of Aerospace Power.

An appropriate college course and its credits will be substituted in lieu of Air Science academics.

Two hours of Leadership Laboratory Training are required per week.

A.S. 103. Foundations of Aerospace Power.

Credit 2(2-2)

A survey of the constituent elements of aerospace power, the organization and operation of the military arm of the Federal government, and an evaluation of the professional officer in the United States Air Force.

AIR SCIENCE 2 (AFOE 200)**AFOE 201. World Military Systems.**

Credit 2(2-2)

A comparison of the mission, organization, functions and characteristics of Free World land, naval and air forces. This will include a general knowledge of the weapon systems and their employment, an awareness of the trends in the development of land, naval and air force equipment, the changing concept of force employment, and the place of Free World forces in regional security organizations.

AFOE 202. World Military Systems.

Credit 2(2-2)

A study of the mission, organization, function and characteristics of Communist air, land and naval forces and the characteristics and operations of Communist regional security organizations, exploration of the trends in the development and employment of military power and the impact of these trends on world affairs.

AFOE. 203. World Military Systems.

An appropriate college course and its credits will be substituted in lieu of Air Science academics.

Two hours of leadership laboratory training are required per week.

The Advanced Course***AIR SCIENCE 3(AFOE 300)****AFOE 301. Growth and Development of Aerospace Power.**

The nature of war. History of airpower. The mission and organization of the Department of Defense. Air Force concepts, doctrine, and employment.

AFOE 302. Growth and Development of Aerospace Power.

The theory of Astronautics and space operations, to include; spacial environment, space vehicle systems, propulsion, propellants, and power sources, and operations in space.

AFOE 303. Growth and Development of Aerospace Power.

The future development of aerospace power. Preparation for STU. Leadership Seminar.

AFOE 304. Flight Training (Academic). Credit 3(3-3)

Basic academic instruction devoted to civil air regulations, and Meteorology to include a recognition of weather, fog, icing and cloud formation and other procedures such as Aerial Navigation and radio, radio voice procedures, Flight Service and Flight Safety are also treated.

****AIR SCIENCE 4****A.S. 401. Cadet Corps Staff Activities.** Credit 3(4-2)

Knowledge and skills required to organize, direct, coordinate, supervise, and evaluate all elements of cadet corps activity. Ten contact hours are devoted to an introduction presenting the Weather and Navigational aspects of airmanship.

A.S. 402. Military Aspects of World Political Geography. Credit 3(4-2)

The concepts of the military aspects of political geography; maps and charts; factors of power; and the geographic influences upon political problems with a geopolitical analysis of the strategic areas.

A.S. 403. International Relations; and the Air Force Officer. Credit 3(4-2)

Three quarter hours are devoted to the study of the major factors underlying international tensions—nationalism, imperialism, and communism; the attempts to alleviate these tensions—balance of power concepts, the League of Nations, the United Nations and the regional security organizations; and the rise of the two super-powers—the United States and the USSR. Ten contact hours are devoted to the study of material to help the cadet make a rapid effective adjustment to active duty as an officer in the United States Air Force.

A.S. 404. Flight Training (Academic). Credit 3(3-3)

Advanced academic instruction devoted to civil air regulations, and Meteorology to include a recognition of weather, fog, icing and cloud formation and other procedures such as Aerial Navigation and radio, radio voice procedures, Flight Service and Flight Safety are also treated. Prerequisite: A.S. 3.

*****A.S. 405. Flight Training.** Credit 3(3-3)

Flight Instruction provided with sufficient scope to qualify the cadet in the basic principles of contact flying in aircraft of 65-200 horsepower includes air discipline, flight inspection, basic flight maneuvers, emergency procedures, precision landings, take-offs, and cross country flights. Prerequisite: A.S. 3.

* Cadets usually attend Summer Training Unit after completing Air Science 3 and before taking Air Science 4.

** Air Science 4 Cadets may be required to substitute Geography 420 and Government 422 for Air Science 402 and 403 respectively.

*** Must be approved by the Dean of the Department in which student is registered. Students enrolled in A.S. 404 and 405 may, at their option, accept or decline credit offered.

GRADUATES



CERTIFICATES AWARDED

June 1, 1963

AUTO MECHANICS

Willie Selmon Perry

CLOTHING

Leander King

RADIO-TELEVISION

Amos Verno Logan

Floyd Decater Mosley

AIR-CONDITIONING AND REFRIGERATION

Hilliard Raymond Humphrey

SECRETARIAL SCIENCE

Vera Jean Dixon

Ruby Lott Widemon

RECIPIENTS OF ASSOCIATE DEGREES IN SCIENCE

AUTOMOTIVE TECHNOLOGY

Cecil Bruce A. Miles

James O. Norris, Jr.

Robert Adell Wright

BUILDING CONSTRUCTION TECHNOLOGY

Theodore Hinnant

ELECTRICAL TECHNOLOGY

Billy Samuel Cannon

Lawrence Allen Rayner

Willie Everett Means

DEGREES CONFERRED

June 1, 1963

BACHELOR OF SCIENCE IN AGRICULTURE

†Claude Stanley Airall
Robert Alexander Brewer, Jr.
Raymond Lathrown Carver
John Leonard Chesnutt
William Henderson Clayton
Theodore M. Foreman
Daniel Douglas Godfrey
John Fairley Gordon
Richard Alexander Hyatt

Alfonzia Knight
Ben Stephen Lee
Wade Franklin Linney
Lloyd B. Rankine
Earnest Lee Simmons
Amos Kusuka Tagbe
Rudyard W. Taylor
Harvey M. Winslow

BACHELOR OF SCIENCE IN HOME ECONOMICS

Betty Jean Barr
Kathaleen Bledsoe
Mary Ella Caldwell
Shirley Temple Carlton
Mozelle Chasten
Frazelle A. Cooke
Pattie Black Cotton
Peggy J. Covington
Carolyn S. Davidson
‡Inez Reubei Gayle
Barbara Sneed Gross
Alphonso Harrison, Jr.
Brendolyn L. Ingram

*Della G. Kibler
Philistine Nesmith
Annie Davis Pennix
Arthur M. Winford Rice
*Mary Harris Roberts
Joyce Ann Rogers
‡Minnie Ruth Ruffin
Elizabeth W. Sanders
Ellamae E. Squires
Earnestine Suggs
Hattie B. Williamson
‡Ivy Mae Woolcock

BACHELOR OF SCIENCE—BIOLOGY

Charles Anderson
Joyce W. Backmon
Mary Ellen Barnes
**‡Yvonne O. Bell
James E. Browne
Betty Jean Cooper
Henry E. Fenner
Alton B. Gunn
Bernard R. Hall
Johnny L. Henderson

Harold A. Horton
Charles D. Keck, Jr.
William G. Lewis
Harold G. Reid
James A. Richmond
Dunlap Scott, Jr.
McHarrell Z. Thomas
Randall A. Neal
Sylvia Arnetta Walker
**Wilson Thomas Walker

BACHELOR OF SCIENCE—CHEMISTRY

Harold Constance Curtis
Henry LaRue Goldston
*George Earl Grant
Wilbert Matthews, Jr.
Donald A. Morgan
Vincent N. Rice

Milton Richards
Lucinda M. Rodgers
Earl E. Scott, Jr.
‡Lawrence Seibles
William Taylor

‡Summa Cum Laude
‡Magna Cum Laude
*Cum Laude

**NSF Undergraduate Research Participant

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

John C. Bolden
J. Eugene Bristow
McKinley E. L. Bryant
Arthur L. Crews, Jr.
Cabell Walton Daniel

Cato C. DeVane
Roscoe Hines, Jr.
Rudolph A. Sharpe
Anelson Watkins
James H. Wills

BACHELOR OF SCIENCE IN BUSINESS EDUCATION

Beulah J. Baker
Steve L. Boney
Laura M. Boykin
Hilda E. Coley
Dorothy Currye
Catherine L. Davis
Sylvia Y. Dean
Girther G. Deans
Lillie M. Hardy
Emma M. Head

Jerry Leonard Hogan
Agnes E. McCoy
Mattie L. Maynard
*Lillian J. Middleton
Virginia L. Oates
Charley Pinson
Clarence A. Richardson
Shirley D. Rogers
Dorothy Lamour Spain
*Iris Oleane Worley

BACHELOR OF SCIENCE IN ARCHITECTURAL ENGINEERING

Eugene Blackmon
James F. Blanding
Harold B. Duhart
Raphael G. Glover
Sidney L. Holmes, Jr.

*James Donell Long
Trevor Anthony Salmon
James F. Mathis
Marvin L. Montgomery
Ponce DeLeon Tidwell

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

*Ralph Gibson Barnhill
Alonzo Blount
William L. Currence
Navarro C. Elliott
Willie Herbert Jones
Arthur T. Liggins

Lewis L. Long, Jr.
Donald L. McClure
Mark Anthony Martin, Jr.
Julius Thomas Pitts, Jr.
*Alphonzo J. Stewart
Walter Watkins

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Oscar T. Alexander
Clark M. Chesten
Joseph B. Ferguson
Tommy Cannon Gaddie

James Gill, Jr.
Donald B. Morris
Cleveland Simpson
Naclane F. Waugh

BACHELOR OF SCIENCE IN FINE ARTS

Curtis Lee Wilkerson

Owen J. Caldwell

BACHELOR OF SCIENCE IN INDUSTRIAL ARTS EDUCATION

Theodore R. Allen
John Thomas Atkins
George William Bynum
Charles Vincent Crump
Revis V. McClairen
William T. Macon

Thomas A. Pigford
William H. Thigpen
Timothy L. Wilder, Jr.
Golden Ward
Everette L. Witherspoon

‡Summa Cum Laude

†Magna Cum Laude

*Cum Laude

**NSF Undergraduate Research Participant

BACHELOR OF SCIENCE—ENGINEERING MATHEMATICS

Clifton Headen, Jr.
James Milton Hines
Ralph Hunt

Edward Earl Lewis
Jonathan Paul Tucker

BACHELOR OF SCIENCE—MATHEMATICS

George F. Covington
Doris Curtiss Dunnegan
Samuel Evans, Jr.
Margaret O. Gadson
Walter J. Harrison

Archie Johnson
Vivian Katrinia Johnson
Elbert S. Sloan
Maurice C. Suggs
Richard Kelly Wilson

BACHELOR OF SCIENCE—ENGINEERING PHYSICS

Jerry Michael Fite
†Grady Earl Jamison

Joseph Alfred McNeil

BACHELOR OF SCIENCE

Bobbie J. Bailey
Ezell Alexander Blair, Jr.
Curtis Bogans
Kenneth Elwood Bond
Sim H. Bowden
Dorcas M. Bradley
Mary Louise Brantley
Green Lee Burge
Charles O. Carter
David W. Chapman
Geneva Charles
Shirlee A. Cherrye
Ernest William Coles
Frances L. Cooke
Frederick E. Corpening
Joseph P. Cotton
Marion E. Craven
Julia M. Daniels
Mae J. Dawson
William H. Dixon
Carolyn B. Doggett
John H. Edwards, III
James E. Evans
Patricia Ann Ford
Mary Sue Francis
Emily M. Gibbs
Robert A. Gilchrist, Jr.
Jerry L. Green
Nellie Davis Grier
Eddie Lee Harrell
Johnny Hayes
Lugene Heggins, Jr.
*Shirley R. Hinnant
Patricia Y. Hinton
Virginia G. Holley
Robert C. Inniss
Doris L. Johnson

Samuel E. Johnson
Edward Lee Jones
Lawrence L. Jones
Loretta Smalls Jones
Eva J. King
Crystal B. Little
*Rosa Lee Lyles
Clarence W. McKee
Lanes E. McLean
Douglas B. McMillan
James M. Malloy
Billy C. Martin
Thurgood S. Melton
Worth D. Moore
George M. Murray
Herman L. Murrell
Constance C. B. Patterson
Oliver H. A. Patterson
Wilhelmena J. Perry
James Ronald Pittman
Willie Mae Pulley
Richard C. Rader
Barbara L. Rainey
Perry Adolphe Raney
Rosebud M. Richardson
Helma Roberson
Bernard Robinson
Cleta Nell Robinson
Kenneth Lee Rogers
*Brenda D. Scarborough
Yvonne Setzer
Jereline Malloy Simpson
J. D. Smith, Jr.
Robert R. Snipes, Jr.
Nelson N. Solomon
Willie James Spruill
James Leon Tanner

†Summa Cum Laude

†Magna Cum Laude

*Cum Laude

**NSF Undergraduate Research Participant

Edward E. Taylor
 *Herman E. Thomas
 Yvonne Thorne
 James F. Tillery
 Jonathan Waddell
 Howard N. Walker

Gloria M. Wallace
 William H. Whites
 Jacqueline M. Williams
 Bessie A. Wingate
 Shirley A. Young

BACHELOR OF SCIENCE IN NURSING

Mary O. Barber
 Mary H. Covington
 Cennette Fisher
 *Ruth Ann Gavin
 Luetta Heckstall
 Yvonne Hester
 *Natalie J. Mack
 Sherline Matthews
 Barbara Ann Miley
 Mary Lou Payne

Gloria Jean Peacock
 Sharon Hatcher Rankin
 Shirley M. Ravenell
 Peggy Jayne Rogers
 Sadie Marian Smalls
 *Betty Faucette Tate
 Lorraine O. Thomas
 Patricia Ann Totten
 *Marilyn Wilder

MASTER OF SCIENCE IN AGRICULTURAL EDUCATION

Alexander Daniels, B.S., A. and T. College	1950
Henry F. Mebane, B.S., A. and T. College	1947
Leroy Redden, B.S., A. and T. College	1942
Cicero A. Roland, Sr., B.S., A. and T. College	1952

MASTER OF SCIENCE IN INDUSTRIAL EDUCATION

Thomas Hill Avery, B.S., Hampton Institute	1958
James W. Bennett, B.S., A. and T. College	1956
Leon Herndon Hardy, B.S., A. and T. College	1952
James Luther Jenkins, B.S., Hampton Institute	1950
Nathan Hampton Sanders, B.S., A. and T. College	1955
Lee Allan Yates, B.S., A. and T. College	1954

MASTER OF SCIENCE IN EDUCATION

Betty Joan Alexander, B.S., A. and T. College	1959
Frances Louise Beale, B.S., Livingstone College	1951
Margie Louise Boseman, B.S., Morris College	1939
Elizabeth C. Bowman, B.S., St. Augustine's College	1950
Elie Bracy, Jr., B.S., Fayetteville State Teachers College	1959
Melvin Fletcher Broadnax, A.B., Shaw University	1955
Julia Dae Brown, B.S., Winston-Salem Teachers College	1942
Te Ester Brown, B.S., Fayetteville State Teachers College	1942
Howard Lee Burchette, B.S., A. and T. College	1950
Johnnie Edward Burke, A.B., Shaw University	1955
Lawrence G. Burton, B.S., A. and T. College	1954
Annie Elizabeth Byers, B.S., Johnson C. Smith University	1947
Medford Arthur Camper, B.S., Lincoln University	1947
Paul Thomas Charles, A.B., Shaw University	1957
Dorothy Garrison Cherry, B.S., Fayetteville State Teachers College ..	1952
Armada Goodson Cobb, A.B., Shaw University	1949
Mary E. W. Cook, A.B., Johnson C. Smith University	1953
Johnnie Mae Cowan, A.B., Shaw University	1948
Emma Harper DeV Vaughn, B.S., Livingstone College	1954

‡Summa Cum Laude

†Magna Cum Laude

*Cum Laude

**NSF Undergraduate Research Participant

Novella Murrell Drake, B.S., Winston-Salem Teachers College	1942
Madie Ruzel Kearney Dubar, A.B., Shaw University	1948
Adelle Joan Duckett, B.S., Winston-Salem Teachers College	1957
Charles Emerson Eaton, B.S., Winston-Salem Teachers College	1945
Bettie Smith Echols, B.A., Bennett College	1957
Betty Evans Eddleman, B.S., Barber-Scotia College	1955
William Thomas Eddleman, B.S., Johnson C. Smith University	1957
Pauline Irene Eller, B.S., Winston-Salem Teachers College	1941
Frances Lucas Enzlow, B.A., Bennett College	1939
Johnnie Louise Featherstone, B.S., Barber-Scotia College	1950
Yvonne Ballentine Fluker, B.S., Winston-Salem Teachers College	1955
Annie Futrell Foriest, B.S., Elizabeth City Teachers College	1943
Lola Alexander Foster, B.S., Barber-Scotia College	1954
Araminta Gore, B.S., Fayetteville State Teachers College	1953
Emma Jones Graham, B.S., Winston-Salem Teachers College	1957
Eddie Mae Green, B.S., Morris College	1954
Josephine Franklin Griffin, B.S., Winston-Salem Teachers College	1960
Joyce Ann Harris, B.S., Fayetteville State Teachers College	1955
Lois Ingram Harris, B.S., Bennett College	1956
Eunice Forbes Hatfield, B.S., A. and T. College	1948
Elsie H. Henley, B.S., Winston-Salem Teachers College	1944
Annie Elnora Highsmith, B.S., A. and T. College	1950
Mary Bemby Holley, B.S., St. Augustine's College	1944
William Edward Hooker, A.B., Shaw University	1956
Parthenia Chambers Horne, B.S., Johnson C. Smith University	1944
Hornsby Howell, B.S., A. and T. College	1950
Syrena Pridgen Hudson, B.S., Fayetteville State Teachers College	1942
Claudia Hardy Johnson, A.B., Shaw University	1939
Julia Isom Johnson, B.S., Winston-Salem Teachers College	1943
Winnie Pauline Johnson, B.S., North Carolina College at Durham	1951
Hattie Louise King, A.B., Shaw University	1936
Bessie Janie Landis, B.S., Fayetteville State Teachers College	1953
Lucille Leake, B.S., Fayetteville State Teachers College	1958
Pecolia B. Mason, B.S., A. and T. College	1957
Lola Anne McAdoo, B.A., Bennett College	1958
Sonja Ann Marie McCarthy, B.S., Bethune-Cookman College	1961
Marjorie Harrietta McCollum, B.S., Winston-Salem Teachers College	1955
Ernest Augustus McCoy, Sr., B.S., A. and T. College	1937
Annette C. Heade McKee, B.S., Benedict College	1957
Lucille Dean McKee, B.S., A. and T. College	1944
Virginia Wilhelmina McMillan, B. S., Fayetteville State Teachers College	1950
Willie McNeill, Jr., B. S., Livingstone College	1958
Elnora S. Miles, B.S., Fayetteville State Teachers College	1947
Beatrice Gunn Mitchell, B.S., Winston-Salem Teachers College	1943
Olivia Ellis Morgan, B.S., Livingstone College	1948
Doris Adelaide Bruce Moultry, B.S., Morgan State College	1956
Walter Arlis Algereen Myles, B.S., Savannah State College	1927
Ernestine Moore Obee, B.S., Elizabeth City State Teachers College	1948
William Vance Ormond, B.S., Livingstone College	1931
James Lowery Payne, B.S., Winston-Salem Teachers College	1958
Margaret Maxwell Payne, B.S., Johnson C. Smith University	1943
Ramona Strickland Payne, B.S., Winston-Salem Teachers College	1959
Helen Singletary Pettitway, B.S., St. Augustine's College	1952
Mildred Carteen Pinson, B.S., Winston-Salem Teachers College	1941
Florence Terry Reynolds, B.S., Winston-Salems Teachers College	1945
Lucy Reed Reynolds, B.S., A. and T. College	1950
Clara Spencer Ross, B.S., A. and T. College	1955
Mary Browning Saddler, B.S., Bluefield State College	1943
Faye Ervin Sharpe, B.S., A. and T. College	1957
Betty Ann Shepard, B.S., Winston-Salem Teachers College	1957

Margaret Simmons, B.S., Allen University	1956
Laura B. Small, B.S., Fayetteville State Teachers College	1942
Mary Elizabeth Smith, B.S., A. and T. College	1954
Sadie Mims Smith, B.S., Johnson C. Smith University	1939
Willie Mae Fuller Smith, B.S., A. and T. College	1950
Winifred Elaine Thackston, B.S., A. and T. College	1955
Mattie Aldridge Thompson, B.S., Winston-Salem Teachers College ..	1944
Robert L. Turman, B.S., Tuskegee Institute	1949
Robert L. Vinson, B.S., Winston-Salem Teachers College	1946
Annie Thomason Ward, B.S., Winston-Salem Teachers College	1948
Ruth Warwick, B.S., A. and T. College	1953
Marvin Hyatt Watkins, B.S., A. and T. College	1958
Mae Catherine White, B.S., A. and T. College	1960
Thelma Brown Williams, A.B., Shaw University	1950
Marteena Broadnax Wooten, B.S., A. and T. College	1952
Ned Kearney Wright, B.S., A. and T. College	1951

SECOND LIEUTENANTS COMMISSIONED IN THE UNITED STATES ARMY RESERVE

Cadets Commissioned on June 1, 1963

UNITED STATES ARMY RESERVE APPOINTMENT AND BRANCH

James E. Bristow—Signal	Ralph Hunt—Corps of Engineers
Alonzo Blount—Artillery	Charles D. Keck—Infantry
Theodore M. Foreman—Infantry	James M. Malloy—Artillery
Tommy C. Gaddie—Artillery	Earnest L. Simmons—Infantry

Cadets Commissioned on March 15, 1963

Charles V. Crump—Artillery	Perry A. Raney—Ordnance
Naclane F. Waugh—Artillery	

Cadets Commissioned on December 5, 1962

UNITED STATES ARMY RESERVE APPOINTMENT AND BRANCH

Henry E. Fenner—Quartermaster	James M. Hines—Signal
Fentress T. Morris—Signal	

SECOND LIEUTENANTS COMMISSIONED IN THE UNITED STATES AIR FORCE

Cadets Commissioned on June 1, 1963

Eugene Backmon	George E. Grant
*Charles O. Carter	Joseph A. McNeil
Samuel Evans	James F. Mathis

Cadet Commissioned on January 30, 1963

Julius T. Pitts

Cadets Commissioned on December 5, 1962

James E. Browne	Arthur T. Liggins
* Distinguished AFROTC Graduate	

PRIZES AND AWARDS



PRIZES AND AWARDS

Five alumni Scholarships of \$1000 each were awarded by the A. and T. College Alumni Association to five high school seniors who ranked high on the College Entrance Psychological Test given by the Association through its state-wide testing program.

The Alice B. Campbell Scholarship of \$100 given by the A. and T. College Ladies Faculty Club to a needy girl with excellent character and good scholastic rating.

INEZ REUBIE GAYLE

The Hamilton Gold Watch presented by the Hamilton Watch Company to the graduate in Engineering who has most successfully combined proficiency in his major field of study with notable achievements in the social sciences and humanities.

GRADY EARLE JAMISON

The Merrick Medal Award to the graduating senior for all-round excellence in Industrial Arts.

JOHN THOMAS ATKINS

The Saslow's, Incorporated, Medal Award to the graduating senior with the best record in the School of Education and General Studies.

BRENDA D. SCARBOROUGH

The Saslow's, Incorporated, Medal Award to the graduating senior with the best record in the Social Sciences.

HERMAN EDWARD THOMAS

The Spaulding Medal Award to that member of the graduating class with the highest achievement in Agriculture, presented by Mrs. L. J. Spaulding of Greensboro, N. C.

CLAUDE STANLEY AIRALL

Certificates of Merit for Service in the James B. Dudley Chapter of the Student National Education Association.

ANNIE ANDERSON
THEODORE BELL
GLORIA CARTER
WALTER FAIRIBAUT

LARRY T. GRADY
OLIVER E. GRAHAM, III
ULYSSES R. LEE

RUTH MANN
MARGARET PARKER
BETTY R. PRICE
ALLEGRA WILDER

The Gate City Chapter, Alumni Association Award to that member of the graduating class who has rendered the most distinctive service to the college and to the community.

EZELL A. BLAIR, JR.

The L. Richardson Auxiliary Award to the most promising graduate in the School of Nursing.

CENNETTE FISHER

National Scholastic Press Association Awards for high journalistic achievement on THE REGISTER, college newspaper.

THE STAR — for two years as Editor-in-Chief of The A. and T. College REGISTER, now a weekly publication, with First Class Honor ratings in the National Newspaper Critical Service of The Associated Collegiate Press.

TOMMY C. GADDIE

THE JOURNEYMAN — for two or more years of meritorious service to THE REGISTER.

CARY P. BELL
MOSES KAMARA

EULA JONES

TROY McMILLAN
KENNETH SMITH

THE CUB — for at least one term of service to THE REGISTER.

ANNAN AMEGBE
CAROLYN BOWDEN
GLORIA BROOKS
CAROLYN COVIEL

DARLENE DRUMMOND
MARY JONES
WESLEY MOTLEY
WILHELMENIA PERRY
ALOHA PEYTON

GEORGE RALEIGH
ANNINIAS SMITH
CHARLES TURNER
DELORES WEBB

THE IRVING-SWAIN PRESS Award — \$25.00 Savings Bond — for the greatest contribution to the success of THE REGISTER.

TOMMY C. GADDIE

The William Andrews Rhodes Medal to the person who attained the best record in Musical Studies and Activities during the year.

BRENDA SCARBOROUGH

Recipients of the Music Faculty Awards to top ranking students in the department of Music.

BRENDA SCARBOROUGH, *Senior*
STANLEY GRADY, *Junior*

WILLIAM MASON, *Sophomore*
MICHEL KENNER, *Freshman*

The Band Awards for Four Years of Meritorious Service in the College Band.

*FREDERICK DEGRAFFENREIDT
FRANKLIN HEAD
MATTHEW HEARTLEY
WILLIAM MOORING

BRENDA SCARBOROUGH
WILBERT SPRUILL
CLYDE TAYLOR

Recipients of Awards for Four Years of Meritorious Service in the College Choir.

DOROTHY JOHNSON

RICHARD RADER

Recipients of Awards for Three Years of Meritorious Service in the College Choir.

YVONNE ELLIS
DAVETTA FLORANCE
ELEANOR MASON

SARAH REARDEN
DENITA REYNOLDS

GWENDOLYN TURNER
ANDREW WILLIS
NAZAR WRIGHT

Recipients of Awards for Three Years of Meritorious Service in the College Male Chorus.

RICHARD RADER

ANDREW WILLIS

NAZAR WRIGHT

The Fellowship Council Awards for Four Years of Distinguished Service in Religious Activities on the campus.

DORCAS M. BRADLEY
HILDA COLEY
LUETTA HECKSTALL
RALPH HUNT
ROBERT JAMES

GRADY E. JAMISON
BILLY C. MARTIN
DORIS H. McDUFFIE
WILHELMENIA J. PERRY
LAWRENCE PRICE
LUCINDA M. RODGERS

EARL SMITH, JR.
HERMAN E. THOMAS
JAMES H. WILLS
IRIS O. WORLEY
IVY M. WOOLCOCK

Honorable Mention is accorded the persons listed below for from one to three years of Meritorious Service in Religious Activities on the campus.

INEZ REUBIE GAYLE
LEE R. GILCHRIST

SHIRLEY R. HINNANT
OSCAR JOHNSON

WILLIE MAE PULLEY
SADIE M. SMALLS

* Perfect Attendance for 4 years

ENROLLMENT BY COUNTIES IN NORTH CAROLINA

1963-1964

Alamance	59	Lee	11
Alexander	8	Lenoir	17
Anson	27	Lincoln	2
Beaufort	26	Macon	1
Bertie	22	Madison	1
Bladen	25	Martin	28
Brunswick	22	Mecklenburg	71
Buncombe	17	Montgomery	6
Burke	20	Moore	17
Cabarrus	26	Nash	14
Caldwell	12	New Hanover	42
Carteret	20	Northampton	31
Caswell	8	Onslow	10
Catawba	16	Orange	30
Chatham	28	Pamlico	6
Chowan	5	Pasquotank	13
Cleveland	27	Pender	17
Columbus	32	Perquimans	10
Craven	27	Person	22
Cumberland	49	Pitt	39
Currituck	6	Polk	2
Davidson	10	Randolph	17
Davie	3	Richmond	43
Duplin	33	Roberson	31
Durham	32	Rockingham	37
Edgecombe	77	Rowan	27
FORSYTH	121	Rutherford	15
Franklin	8	Sampson	30
Gaston	27	Scotland	17
Gates	6	Stanly	11
Granville	23	Stokes	9
Greene	11	Surry	4
GUILFORD	555	Transylvania	3
Halifax	49	Tyrrell	5
Harnett	11	Union	4
Haywood	1	Vance	30
Henderson	3	Wake	66
Hertford	19	Warren	19
Hoke	4	Washington	9
Hyde	6	Wayne	70
Iredell	16	Wilkes	9
Johnston	19	Wilson	23
Jones	18	TOTAL	2,403

ENROLLMENT BY STATES

1963-1964

Alabama	7	New Jersey	29
Arkansas	3	New York	83
California	2	NORTH CAROLINA	2,403
Connecticut	7	Ohio	1
Delaware	6	Oregon	2
District of Columbia	33	Pennsylvania	25
Florida	34	Rhode Island	2
Georgia	34	South Carolina	25
Illinois	1	Tennessee	1
Indiana	1	Texas	3
Kentucky	2	VIRGINIA	172
Louisiana	1	West Virginia	2
Maryland	10	Canada	1
Massachusetts	2	East Africa	2
Michigan	3	West Africa	4
Minnesota	2	West Indies	5
Mississippi	1	South America	1
Montana	1	TOTAL	3,005

SUMMARY OF ENROLLMENT

1963-1964

Senior Class	457
Junior Class	590
Sophomore Class	670
Freshmen Class	934
Special Students	135
Graduate Students	219
TOTAL	*3,005
Total Enrollment, excluding duplicates, regular session, 1963-1964 ..	3,005
Summer Quarter, Undergraduate, 1963	511
Summer Quarter, Graduate, 1963	1,002
Grand Total 1963-1964	4,518
* Fall Quarter Only	

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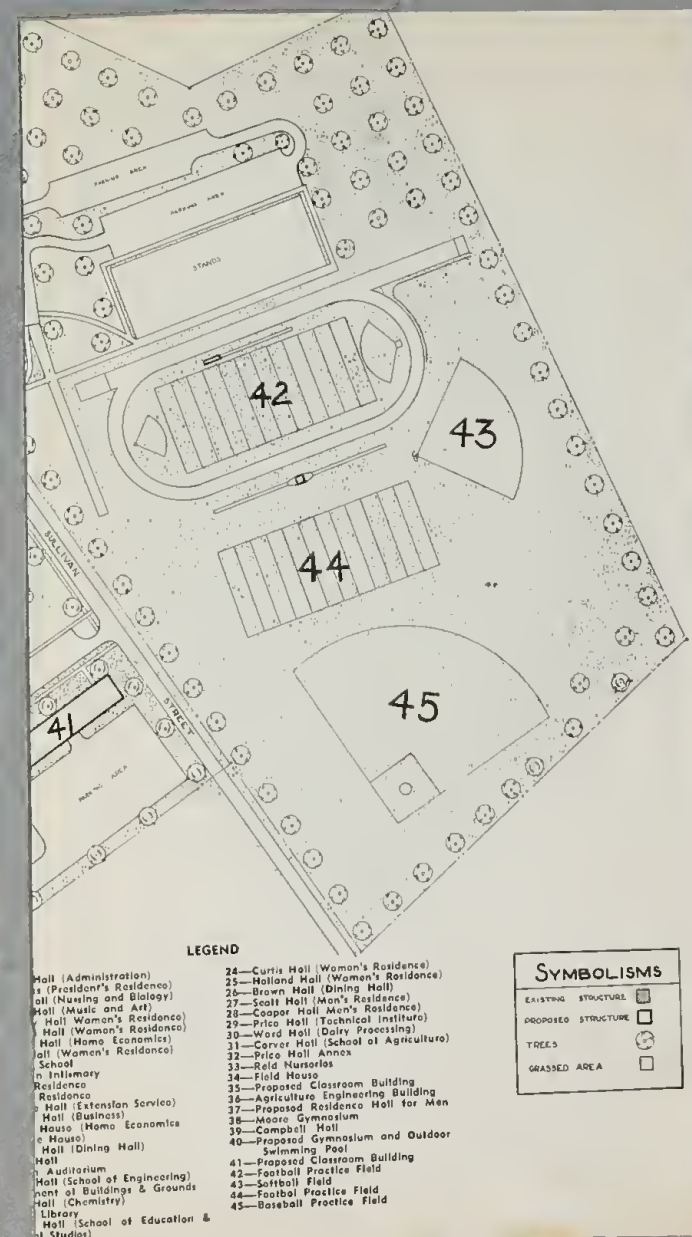
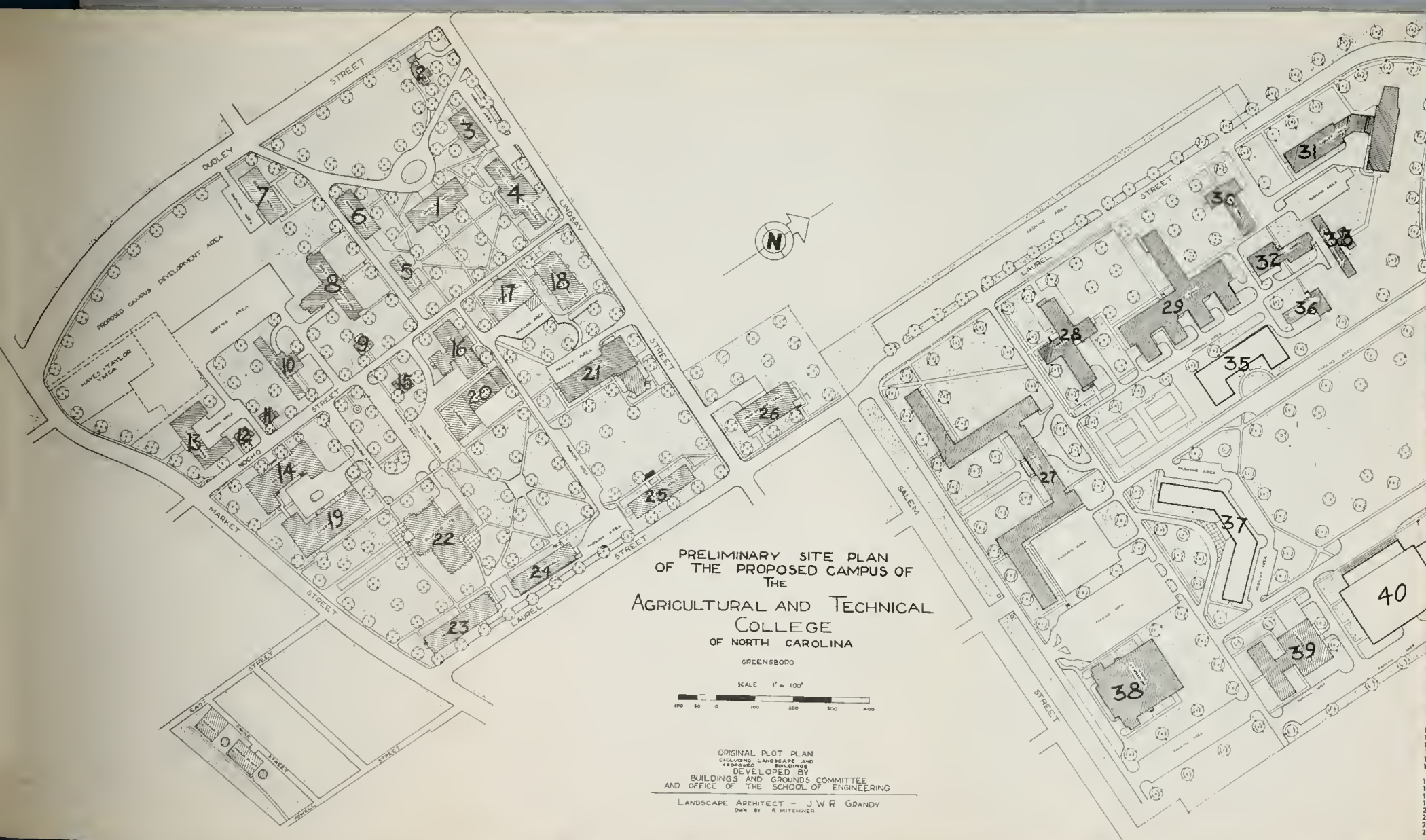
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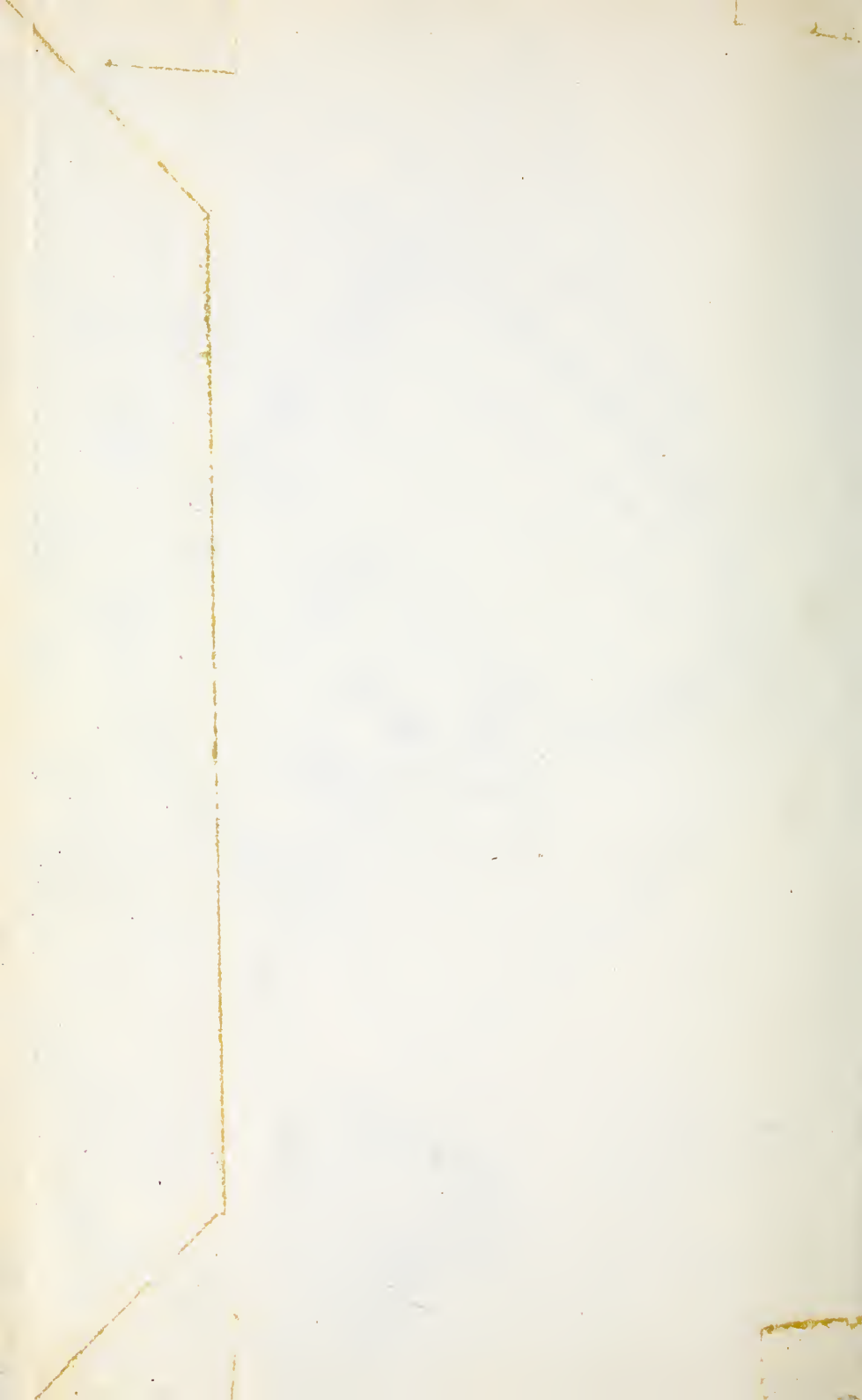
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THE AGRICULTURAL AND TECHNICAL COLLEGE OF NORTH CAROLINA AT GREENSBORO

1964 15.5



